

Phaser® 7400

XEROX®

color printer

# Service Manual



## Book 2: Options



# Phaser<sup>®</sup> 7400 Color Printer

## Service Manual Book 2: Options

### **Warning**

The following servicing instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

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# Service Terms

## Manual Terms

Various terms are used throughout this manual to either provide additional information on a specific topic or to warn of possible danger present during a procedure or action. Be aware of all symbols and terms when they are used, and always read NOTE, CAUTION, and WARNING statements.

### Common Acronyms:

The following list defines the acronyms that may be found in this manual.

**ADC:** Automatic Density Control

**BTR:** Bias Transfer Roller

**CRUM:** Customer Replaceable Unit  
Monitor

**CTD:** Toner Density Control

**ESD:** Electrostatic Discharge

**IDT:** Intermediate Transfer Unit

**MCU:** Engine Control Board

**NCS:** Non-Contact Sensor

**PHD:** Imaging Unit

**PL:** Corresponds to the FRU Parts List.

**ROS:** Laser Scanning Unit

**RTC:** Charge Roller

### Note

A note indicates an operating or maintenance procedure, practice or condition that is necessary to efficiently accomplish a task.

A note can provide additional information related to a specific subject or add a comment on the results achieved through a previous action.

### Caution

A caution indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, results in damage to, or destruction of, equipment.

### Warning

A warning indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, results in injury or loss of life.

## Product Terms

**Caution:** A personal injury hazard exists that may not be apparent. For example, a panel may cover the hazardous area.

**Danger:** A personal injury hazard exists in the area where you see the sign.

# Symbols Marked on the Product

DANGER high voltage.



Protective ground (earth) symbol.



Hot surface on or in the printer. Use caution to avoid personal injury.



The surface is hot while the printer is running. After turning off the power, wait 30 minutes.



Avoid pinching fingers in the printer. Use caution to avoid personal injury.



Use caution (or draws attention to a particular component). Refer to the manual(s) for information.



# Power Safety Precautions

## Power Source

For 115 VAC printers, do not apply more than 135 volts RMS between the supply conductors or between either supply conductor and ground. For 230 VAC printers, do not apply more than 254 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. This manual assumes that the reader is a qualified service technician.

Plug the three-wire power cord (with grounding prong) into a grounded AC outlet only. If necessary, contact a licensed electrician to install a properly grounded outlet. If the product loses its ground connection, contact with conductive parts may cause an electrical shock. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

## Disconnecting Power

### Warning

Turning the power off using the power switch does not completely de-energize the printer. You must also disconnect the power cord from the printer's AC inlet. Disconnect the power cord by pulling the plug, not the cord.

Disconnect the power cord in the following cases:

- if the power cord or plug is frayed or otherwise damaged,
- if any liquid or foreign material is spilled into the product,
- if the printer is exposed to any excess moisture,
- if the printer is dropped or damaged,
- if you suspect that the product needs servicing or repair,
- whenever you clean the product.

# Electrostatic Discharge (ESD) Precautions

Some semiconductor components, and the respective sub-assemblies that contain them, are vulnerable to damage by Electrostatic discharge (ESD). These components include Integrated Circuits (ICs), Large-Scale Integrated circuits (LSIs), field-effect transistors and other semiconductor chip components. The following techniques will reduce the occurrence of component damage caused by static electricity.

Be sure the power is off to the chassis or circuit board, and observe all other safety precautions.

- Immediately before handling any semiconductor components assemblies, drain the electrostatic charge from your body. This can be accomplished by touching an earth ground source or by wearing a wrist strap device connected to an earth ground source. Wearing a wrist strap will also prevent accumulation of additional bodily static charges. Be sure to remove the wrist strap before applying power to the unit under test to avoid potential shock.
- After removing a static sensitive assembly from its anti-static bag, place it on a grounded conductive surface. If the anti-static bag is conductive, you may ground the bag and use it as a conductive surface.
- Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage some devices.
- Do not remove a replacement component or electrical sub-assembly from its protective package until you are ready to install it.
- Immediately before removing the protective material from the leads of a replacement device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
- Minimize body motions when handling unpacked replacement devices. Motion such as your clothes brushing together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an electro-statically sensitive device
- Handle IC's and EPROM's carefully to avoid bending pins.
- Pay attention to the direction of parts when mounting or inserting them on Printed Circuit Boards.

# Service Safety Summary

## General Guidelines

**For qualified service personnel only:** Refer also to the preceding Power Safety Precautions.

**Avoid servicing alone:** Do not perform internal service or adjustment of this product unless another person capable of rendering first aid or resuscitation is present.

**Use care when servicing with power:** Dangerous voltages may exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on. Disconnect power before removing the power supply shield or replacing components.

**Do not wear jewelry:** Remove jewelry prior to servicing. Rings, necklaces and other metallic objects could come into contact with dangerous voltages and currents.

## Warning Labels

Read and obey all posted warning labels. Throughout the printer, warning labels are displayed on potentially dangerous components. As you service the printer, check to make certain that all warning labels remain in place.

## Safety Interlocks

Make sure all covers are in place and all interlock switches are functioning correctly after you have completed a printer service call. If you bypass an interlock switch during a service call, use extreme caution when working on or around the printer.

## Servicing Electrical Components

Before starting any service procedure, switch off the printer power and unplug the power cord from the wall outlet. If you must service the printer with power applied, be aware of the potential for electrical shock.

### Warning

Do not touch any electrical component unless you are instructed to do so by a service procedure.



S7300-02

## Servicing Mechanical Components

When servicing mechanical components within the printer, manually rotate drive assemblies, rollers, and gears.

### Warning

Do not try to manually rotate or manually stop the drive assemblies while any printer motor is running.



S7300-03

# Regulatory Specifications

Xerox has tested this product to electromagnetic emission and immunity standards. These standards are designed to mitigate interference caused or received by this product in a typical office environment.

## United States (FCC Regulations)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with these instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiver.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Any changes or modifications not expressly approved by Xerox could void the user's authority to operate the equipment. To ensure compliance with Part 15 of the FCC rules, use shielded interface cables.

## Canada (Regulations)

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Xerox Corporation declares, under our sole responsibility, that the product to which this declaration relates is in conformity with the following standards and other normative documents:

Low Voltage Directive 73/23/EEC as amended

EN 60950:2000
EN 60825-1:1994+A1:2001+A2:2002

Electromagnetic Compatibility Directive 89/336/EEC as amended

EN 55022:1998 +A1:2000 +A2:2003
EN 55024:1998 +A1:2000 +A2:2003
EN 61000-3-2:2000
EN 61000-3-3:1995 +A1:2001

Radio & Telecommunications Terminal Equipment Directive 1999/5/EC as amended

EN 300 330-2 V1.1.1
EN 300 440-2 V1.1.1
EN 300 489-3 V1.3.1

This product, if used properly in accordance with the user's instructions, is neither dangerous for the consumer nor for the environment.

A signed copy of the Declaration of Conformity for this product can be obtained from Xerox.



# Manual Organization

The *Xerox Phaser 7400 Color Printer Service Manual* is the primary document used for repairing, maintaining, and troubleshooting the printer. The manual is organized into two books. This volume, Book 2, Phaser 7400 Options includes an overview of option theory, option FRU replacement procedures, parts lists, and wiring diagrams. Use this volume after you've isolated a problem internal to a specific option or when a problem arises at the engine/option interface. Use Book 1 for diagnostic and troubleshooting procedures for the printer and all its options.

Use Book 2 as a reference when servicing printer options. Book 2 includes information important for the repair or replacement of option components. Use the troubleshooting procedures in Book 1 to diagnose and isolated the problem.

Book 2 contains these sections:

**Introductory, Safety, and Regulatory Information:** This section contains important safety information, regulatory requirements, and information about this manual.

**Section 1 - General Information:** This section contains an overview of the options available, configuration, specifications, and consumables.

**Section 2 - Theory of Operation:** This section contains functional information on each option.

**Section 3 - General Troubleshooting:** This section provides troubleshooting methods for situations where no error indicator is available.

**Section 4 - Adjustments and Calibrations:** This section provides procedures for the adjustment of print engine components.

**Section 5 - Service Parts Disassembly:** This section contains removal procedures for parts listed in the option's Field Replaceable Units (FRUs) Parts List. A replacement procedure is included when necessary.

**Section 6 - Parts Lists:** This section contains exploded views of the option FRUs as well as FRU part numbers.

**Section 7 - Wiring Diagrams:** This section contains option plug/jack locations and wiring diagrams.

# Book 1 - Print Engine

Use Book 1 as your primary resource for understanding the operational characteristics of the print engine. Book 1 describes printer specifications, theory and includes information important to the diagnosis and repair of problems occurring in the print engine and attached options. Book 1 also provides detailed print engine replacement procedures, parts lists, and wiring diagrams.

Book 1 contains these sections:

**Introductory, Safety and Regulatory Information:** This section contains important safety information, regulatory requirements, and information about this manual.

**Section 1 - General Information:** This section contains an overview of the printer's operation, configuration, specifications, and consumables.

**Section 2 - Theory of Operation:** This section contains detailed functional information on print engine components.

**Section 3 - Error Codes and Messages:** This section describes the resident diagnostics available to assist the troubleshooting process. These diagnostics include error codes and messages and Service Usage Profile data stored in the printer. This section provides complete troubleshooting information for the print engine and all options.

**Section 4 - General Troubleshooting:** Troubleshooting discussions cover the operation of Power On Self Test (POST), Service Diagnostics, In addition, this section includes troubleshooting methods for situations where no error indicator is available.

**Section 5 - Print-Quality Troubleshooting:** This section focuses on techniques to correct image quality problems associated with printer output.

**Section 6 - Adjustments and Calibrations:** This section provides procedures for the adjustment of print engine components.

**Section 7 - Cleaning and Maintenance:** This section provides periodic cleaning procedures for the printer.

**Section 8 - FRU Disassembly:** This section contains removal procedures for parts listed in the print engine's Field Replaceable Units (FRUs) Parts List. A replacement procedure is included when necessary.

**Section 9 - Parts Lists:** This section contains exploded views of the print engine FRUs as well as part numbers for items available as FRUs. Part numbers for printer options and accessories are also included.

**Section 10 - Wiring Diagrams:** This section contains the plug/jack locations and the wiring diagrams for the print engine.

**Appendix A - Menu Maps:** This section provides an illustration of the front-panel menu as well as a listing of the Service Diagnostics tests available.

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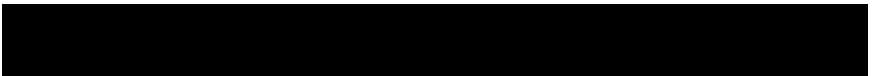
# General Information

## In this chapter...

- Printer Introduction and Overview
- Printer Configurations
- Printer Options
- Specifications

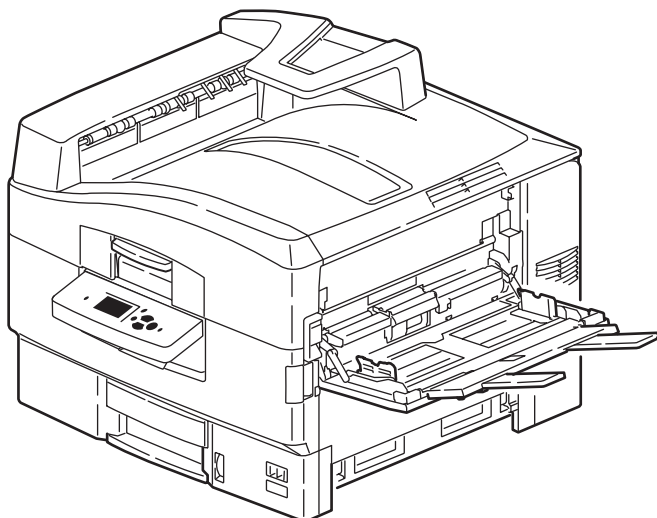
Section

1



# Printer Introduction and Overview

The *Xerox Phaser 7400 Color Printer Service Manual* is the primary document used to repair, maintain, and troubleshoot this printer. For manual updates, Service Bulletins, knowledge base, etc., see [www.xerox.com/office/7400support](http://www.xerox.com/office/7400support). For further technical support, contact your assigned Xerox Technical Support for this product.



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The Xerox Phaser 7400 Color Printer is a single pass, electrophotographic design, using light emitting diodes (LED) for image exposure. The Phaser 7400 supports PostScript 3 and PCL5c page description languages. Print performance for A4 paper is 40 pages per minute (ppm) monochrome, 36 ppm for full color in 1-sided or 2-sided modes. Resolutions of up to 600 x 1200 dots per inch (dpi), 32-level grayscale print is applicable at 600x600 dpi. The base configuration (Phaser 7400N) features USB 2.0 and 10/100baseT Ethernet Ports, 256 MB of memory, a 250-sheet multi-purpose Tray 1 (MPT), a 550-sheet input tray (Tray 2), a 500-sheet face-down Top Output Tray, and a 250-sheet face-up Side Output Tray.

Phaser 7400 printer options add memory, paper capacity and functionality. For configurations not originally equipped, an internal Hard Drive is available for font storage, storing print files, job collation, proof, personal, and secure print support. A selection of RAM memory upgrades are available to raise the installed quantity to the 1 GB maximum. A 1650-Sheet High-Capacity Feeder (HCF) is available with three, 550-sheet universal trays. A 550-Sheet Feeder (Tray 3) Lower Tray Assembly (LTA) is also available. On the output side, a 1000-Sheet Finisher provides punching, stapling, saddle stitching, and offset stacking, which raises the output total to 1750 sheets. A Duplex Unit is available to add automatic, 2-sided printing for supported paper sizes from all trays.

# Printer Configurations

The Phaser 7400 Color Printer is available in five configurations. The main differences are standard memory, optional high-capacity feeders, duplexing (2-sided printing) capabilities, networking, Finisher capabilities, and internal Hard Drive. The following table lists the available configurations.

Features	Printer Configuration				
	7400N	7400DN	7400DT	7400DX	7400DXF
Max Print Speed (ppm) color / monochrome	36/40	36/40	36/40	36/40	36/40
Hard Drive for Secure, Proof, Personal, and Saved Print Jobs	Optional	Optional	Yes	Yes	Yes
Standard Memory*	256 MB	256 MB	512 MB	512 MB	512 MB
USB Port	Yes	Yes	Yes	Yes	Yes
10/100 Ethernet Port	Yes	Yes	Yes	Yes	Yes
RAM Collation	Yes	Yes	Yes	Yes	Yes
Duplex Unit	Optional	Yes	Yes	Yes	Yes
PostScript / PCL Fonts	Yes	Yes	Yes	Yes	Yes
Resolutions (dpi):					
Standard	600x600x1	600x600x1	600x600x1	600x600x1	600x600x1
Enhanced	1200x600x1	200x600x1	1200x600x1	1200x600x1	1200x600x1
Photo	600x600x5	600x600x5	600x600x5	600x600x5	600x600x5
Tray 1 (MPT)**	Yes	Yes	Yes	Yes	Yes
Optional Trays **	Optional	Optional	1 x 550	3 x 550	4 x 550
550-Sheet Feeder**	Optional	Optional	Yes	Optional	Yes
1650-Sheet Feeder**	Optional	Optional	Optional	Yes	Yes
1000-Sheet Finisher***	Optional	Optional	Optional	Optional	Yes

\* All configurations have two memory slots supporting 256 MB and 512 MB cards, up to a maximum of 1 GB.

\*\* Trays 1 and 2 are standard on all configurations. All configurations support additional paper trays in the following combinations:

One 550-Sheet Feeder (Tray 3)

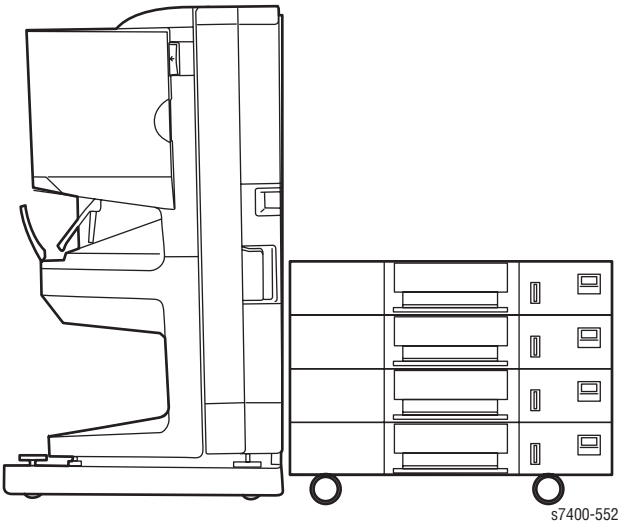
One 1650-Sheet Feeder (Trays 3, 4, and 5 or 4, 5, and 6)

One 550-Sheet Feeder (Tray 3) and one 1650-Sheet Feeder (Trays 4, 5, and 6)

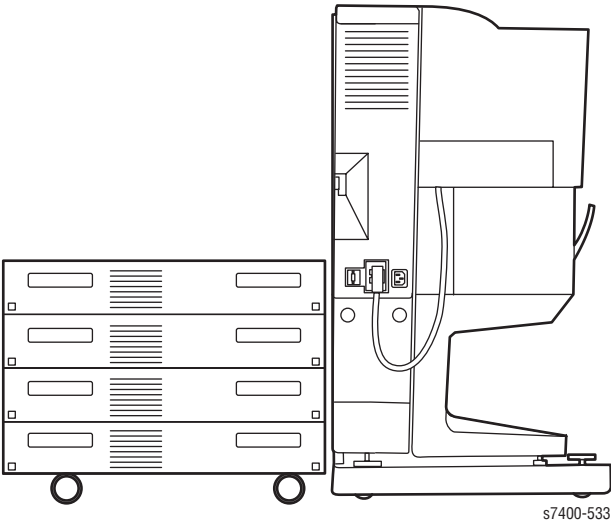
\*\*\* Requires a total of 4 optional trays for fitment.

# Parts of the Finisher and Paper Trays

## Front View



## Rear View



# Printer Options

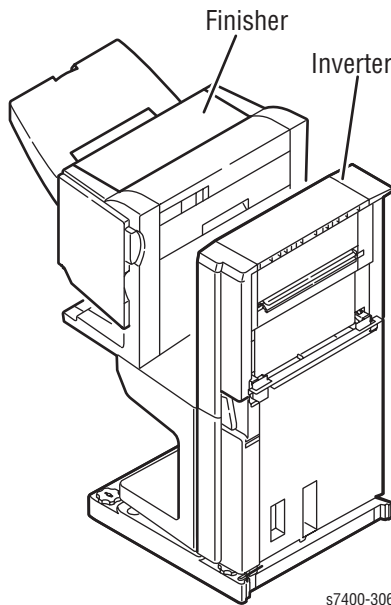
Phaser 7400 Color Printer options include:

- 1,000-Sheet Finisher (with hole punch, staple, saddle-stitch, and inverter)
- 550-Sheet Feeder (LTA)
- 1650-Sheet Feeder (HCF)
- Duplex Unit

## Finisher

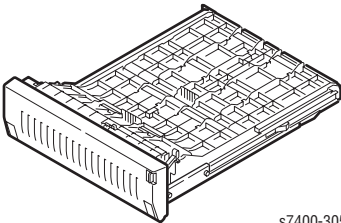
The Finisher increases the output capacity of the printer by 1,000 sheets. Printer output is directed to the Finisher by way of the side exit. Depending on the job specifications, as paper enters the Finisher it is punched, stapled, offset and stacked. The Finisher has two cables; one to hook up to the printer, and another to connect to the Inverter. The Finisher also includes its own power supply.

The Finisher includes a separate Inverter unit to position paper from the printer before the paper reaches the finisher unit for final stacking.



# Duplex Unit

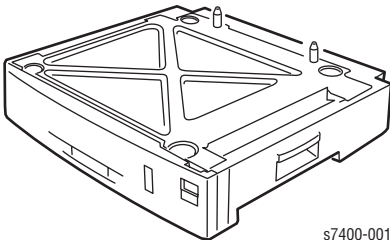
The Duplex Unit adds two-sided printing. The Duplex Unit attaches into the left side above Tray 2 using two latches.



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# 550-Sheet Feeder

The 550-Sheet Feeder increases the input capacity of the printer. The feeder attaches below Tray 2 with four screws. When used in combination with the 1650-Sheet Feeder, the 550-Sheet Feeder is installed between the printer and 1650-Sheet Feeder. Up to four optional 550-Sheet Feeders per printer, totaling six universal trays (Trays 2~6), is allowed. However, when the 1650-Sheet Feeder (HCF) is installed, only one additional 550-Sheet Feeder is allowed between the HCF and the printer. Electrical connection to the printer is made by a single interface connector.

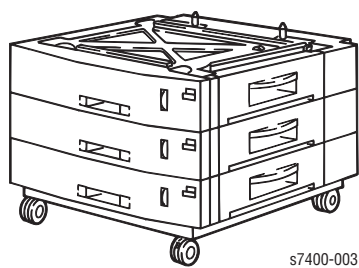


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# 1650-Sheet Feeder

The 1650-Sheet Feeder adds three, 550-sheet trays. Control signals reach the sheet feeder by a single connection. The sheet feeder is secured both to the print engine and the 550-Sheet Feeder.



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## Specifications

### Consumable Life Specifications

Maintenance Items	Size	Product name
Staple Cartridge <sup>1</sup>	5000 staples x3	AR-SC2

### Finisher Electrical Specifications

Characteristic	Specification	
Primary line voltages	110-127 V Printer - 12 amp circuit 220-240 V Printer - 6 amp circuit	
Primary line voltage frequency range	100-120 V Printer - 50/60 Hz $\pm$ 2 Hz 220-240 V Printer - 50/60 Hz $\pm$ 2 Hz	
Power consumption	<b>60 watts</b> (finishing)	<b>12 Watts</b> (standby)

# Physical Dimensions and Clearances

Finisher (including stand)	Value
Height:	1016 mm (40.0 in.)
Width:	813 mm (32 in.)
Depth:	595 mm (23.6in.)
Weight:	Approximately 55 kg (122 lb.) Finisher only
1650-Sheet Feeder	Value
Height:	401 mm (15.8 in.) Optional Paper Tray Assembly
Width:	597 mm (23.5 in.)
Depth:	599 mm (23.6 in.)
Weight:	Approximately 53.6 kg (117 lb.)
550-Sheet Feeder	Value
Height:	109 mm (4.3 in.) Optional Paper Tray Assembly
Width:	597 mm (23.5 in.)
Depth:	599 mm (23.6 in.)
Weight:	16 kg (36 lb.)
Surface	Value
Tilt tolerance:	Within 50 mm side to side.

# Finisher Functional Specifications

## Functional Specifications

Characteristic	Specification	
Transport Speed	34 - 45 PPM	
Transport Reference	Center Reference	
Tray Type (number of trays)	Upper Tray	Lift-up/down offset tray
	Lower tray	Book tray for saddle stitch
Capacity of paper exit and load	Non-staple	1,000 sheets (Small size) 500 sheets (Large size)
	Staple sort	30 sheets
	Max	1,000 sheets (Small size) 500 sheets: (Large size)
	Large size	A3, B4, 11" x 17", 8.5" x 11"
	Small size	A4R, B5, B5R, A5R, 8.5 x 11 R and Executive

## Functional Specifications (Continued)

Characteristic	Specification	
Quantity of paper to be stapled	50 sheets	Small size, 128 g/m <sup>2</sup> x 48
		Large size, 128 g/m <sup>2</sup> x 25
	25 sheets	Large size, 128 g/m <sup>2</sup> x 25
Stapling	Two positions	A3, B4, 11" x 17", 8.5" x 14", 8.5 x 13, A4, 8.5 x 11 R and Executive
	One at the back	A3, B4, A4, A4R, B5
	One in the front	11 x 17, 8.5 x 14, 8.5 x 13, 8.5 x 11, 8.5 x 11R, Executive
Paper exit direction	Face down	
Paper Exit Paper size	A3, B4, A4, A4R, B5, B5R, A5R, 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"R Executive	
Offset function	Provided (output paper size (except for A5R, 5.5 x 8.5	
Recommended paper and weight	Normal paper	60 - 12g/m <sup>2</sup> (16 - 34 lbs)
	Index paper	176 g/m <sup>2</sup> (47 lbs)
	Cover paper	200 - 205 g/m <sup>2</sup> (54-55 lb.)
Staple supply	Staple cartridge replacement	
Staple detection	Staple empty detection	provided
	Cartridge empty detection	provided
	Staple jam detection	provided
Stapling type	Center stapling (center fold)	
Stapling position	1200 mm pitch from the paper center	
Paper size (for saddle stitch)	A3, A4R, B4, 11 x 17, 8.5 x 11R	
Weight of paper (for saddle stitch)	64 - 80 g/m <sup>2</sup> (Cover: 64 - 128 g/m <sup>2</sup> )	
Book tray stacking type	Fixed	
Quantity of paper to be stapled	10 sets (6 - 10 pages)	
	20 sets (1 - 5 pages)	

# Finisher Environmental Specifications

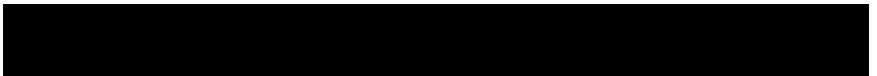
Characteristic	Specification
<b>Temperature</b>	
Operating	10 to 32° C (50 to 89.6° F)
Storage	0 to 4 °C (32 to 109.4° F)
Transport	-10 to 43° C (-14 to 109.4° F)
<b>Humidity (RH)</b>	Relative Humidity (50 - 70% to assure the best print-quality)
Operating	20 - 80%
Storage	10 - 95%
Transport	10 - 95%
<b>Altitude</b>	
Operating	0 to 2500 meters (8,000 ft.) at 25° C
Non-operating	0 to 6000 meters (20,000 ft.)

# Theory of Operation

## In this chapter...

- Operational Overview
- Finisher Overview
- Printer Options
- Finishing Process Summary
- Sensors
- Motors, Rollers, Solenoids, and Clutches
- Detecting Jams
- Power Supplies

## Section 2



# Options Operational Overview

The Phaser 7400 Color Printer Options package consists of:

## Finisher:

- **Punch Unit** - Provides various punch hole (2, 3, and 4 hole) options.
- **Staple Unit** - Staples stacked paper for various media type and size.
- **Saddle Unit** - Delivers and folds stacked paper.
- **Inverter** - Physically inverts the paper for stacking or folding.

## Print Options:

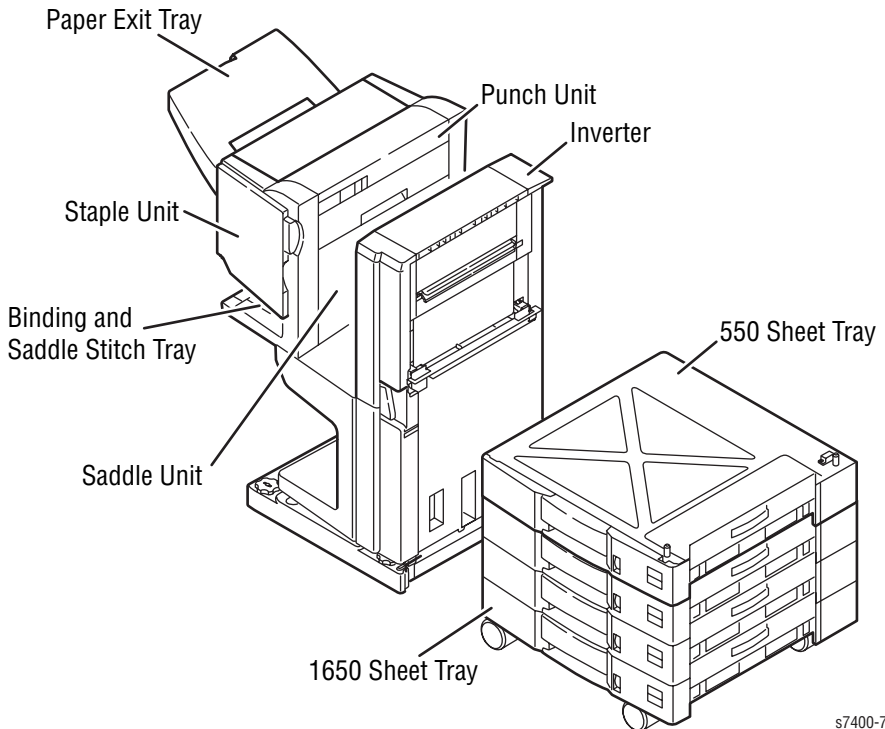
- **550-Sheet Feeder** - Represents one physical tray with 550-sheet output.
- **1650-Sheet Feeder** - Represents a 3-tray combined output of 1650 sheets.
- **Duplex Unit**- Provides printing for both sides of selected media.

# Finisher Overview

The Finisher increases the output capacity of the printer by 1,000 sheets. Printer output is directed to the Finisher by way of the side exit. Depending on the job specifications, as paper enters the Finisher it can be inverted, punched, stapled, offset and stacked. Power is supplied from the printer's AC Accessory Panel.

The Finisher consists of the following major assemblies:

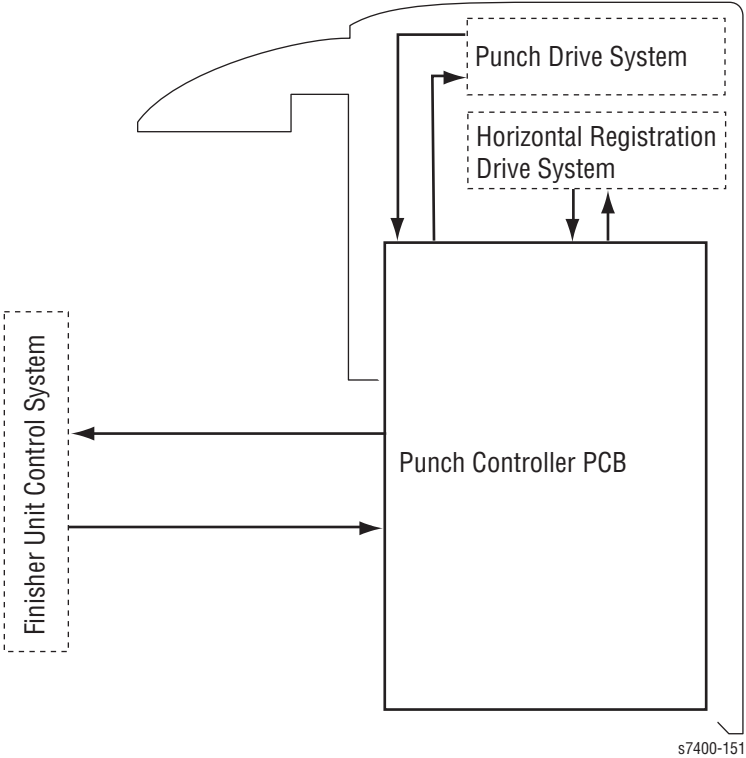
- **Punch Unit** - Provides various punch hole (2, 3, and 4 hole) options.
- **Staple Unit** - Staples stacked paper for various media type and size.
- **Saddle Unit** - Delivers and folds stacked paper.
- **Inverter** - Physically inverts the paper for stacking or folding.



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# Punch Unit

The Punch Unit punches holes in sheets coming from the printer. It provides for 2-hole, 3-hole, and 4-hole punching. The unit installs into the pickup assembly of the finisher. Since the punch unit is not equipped with a paper feeding mechanism, the sheets from the printer move through the punch unit and feed system of the finisher. If the punch feature has been selected, when the trailing edge of a sheet from the printer reaches the punch unit, the sheet stops while the punch shaft rotates to punch a hole along the trailing edge. This operation is controlled through various commands from the Finisher Controller Board and the Punch Controller Board.





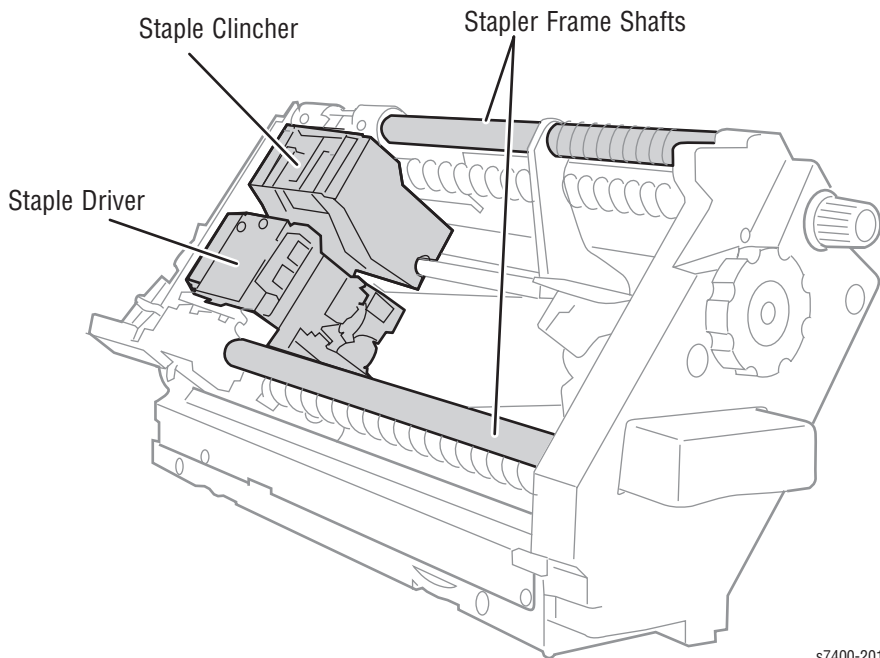
The Punch Unit consists of a die and hole punch (punch blade), which is driven by a DC motor. The unit attaches to the eccentric cam of the punch shaft. A punch home position sensor detects the home position of the punch shaft to ensure that the punch motor stops exactly at its home position, the punch motor stops in relation to the count of clock pulses from the Punch Motor Clock Sensor. When the punch shaft rotates 180 degrees from its home position, it initiates a single punch operation.

### Punch Unit Components

Component	Function
Punch mechanism	When sensor detects proper paper position, the punch blade punches holes in with paper stack following 180 degree rotation of the punch shaft.
Punch Controller Board	Receives instructions from the printer and converts them to control all punch unit operations.
Horizontal Registration System	Detects the home position of the punch slide unit to move it to the appropriate position of the selected paper size.
Photo sensors	Five LED's mount over the inlet paper path to detect the leading and trailing edges of the paper.

## Staple Unit

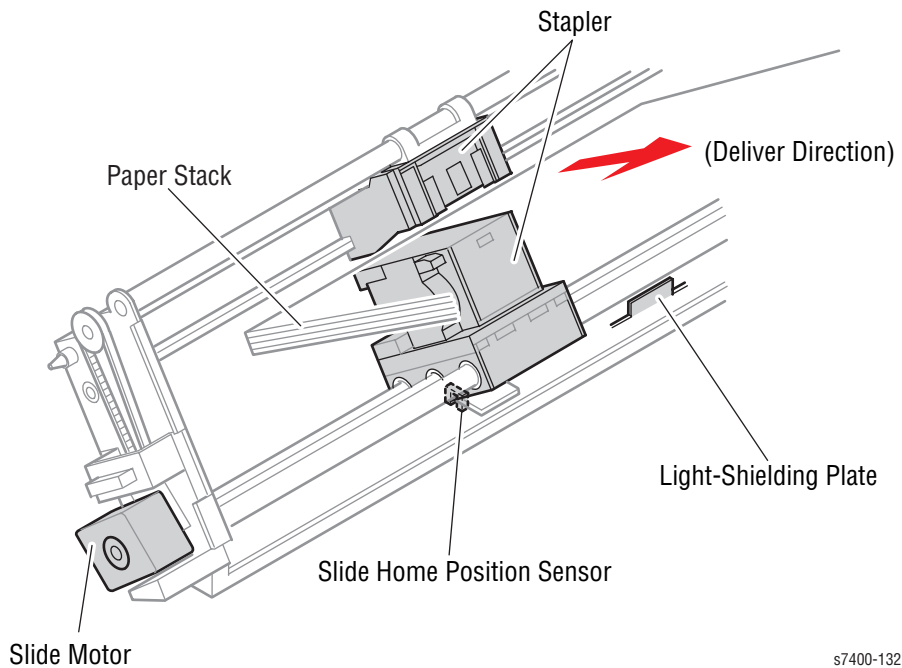
The Staple Unit receives instructions from the printer through the Finisher Controller Board to initiate staple operation and deliver up to 50 sheets of paper (depending on the paper size) to the finisher staple subassembly. The unit mounts in the Finisher and, depending on the media selection, provides front stapling, rear stapling, dual stapling, and saddle stitching (center stapling with fold).



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The stapling position depends on the staple mode and paper size. After power-on, the Finisher Controller Board drives the Finisher Slide Motor to place the Staple Unit in the home position. The stapler starts moving toward the front of the stapler frame and stops when the Slide Home Position Sensor detects the home position.

The slide motor is then driven a specified number of pulses until the stapler reaches the rear standby position at the back of the machine. At this point, the unit enters the standby state.



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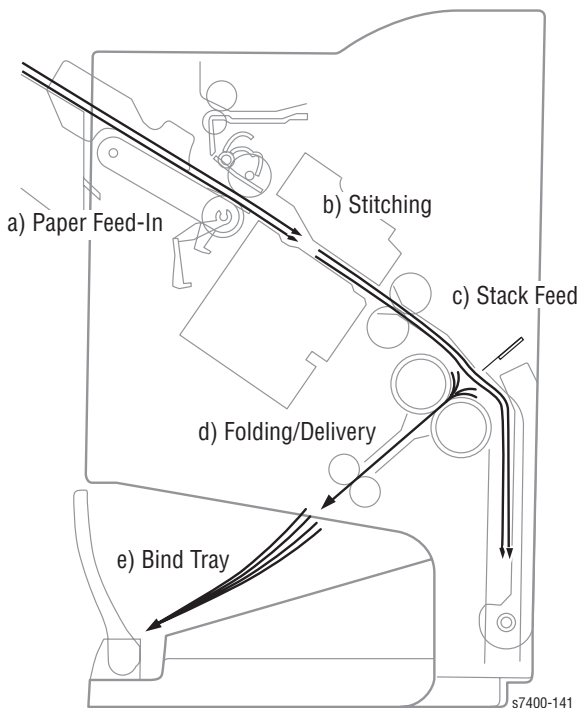
## Staple Unit Components

Component	Function
Staple/Fold Motor	Rotates the cam in the appropriate direction for the stapling process.
Stapler sensors	Detects the absence of and/or the position of the stapling mechanism and motors.
Finisher Slide Motor	Moves the Stapler Unit to the appropriate location on the paper stack for stapling.

## Saddle Unit

The Saddle Unit stitches (center staples) up to 50 sheets (middle 2-point), then folds the stack in two in the Finisher. The Finisher Controller Board receives commands from the printer to control the following operations:

- a. **Paper feed in** - After alignment on the processing tray, the feed drive system inserts a stack of sheets between the stack delivery rollers. As the stack delivery rollers rotate, the stack is fed toward the saddle unit.
- b. **Stitching** - When the center of the paper stack (stitching position) reaches the stapler's staple position, the unit staples the paper stack. When only one sheet is fed from the printer, the next step (stack feed) occurs without performing the stitching operation.
- c. **Stack Feed** - The stack feed rollers feed the paper stack to the stack folding and delivery position where the center of the stack (stitched position) is level with the paper-pushing plate and paper-folding roller.
- d. **Folding/Delivery** - The paper pushing plate pushes the center of the paper stack inward to feed it toward the paper fold rollers. The paper fold rollers and bind delivery rollers then deliver the paper stack to the bind tray (e).

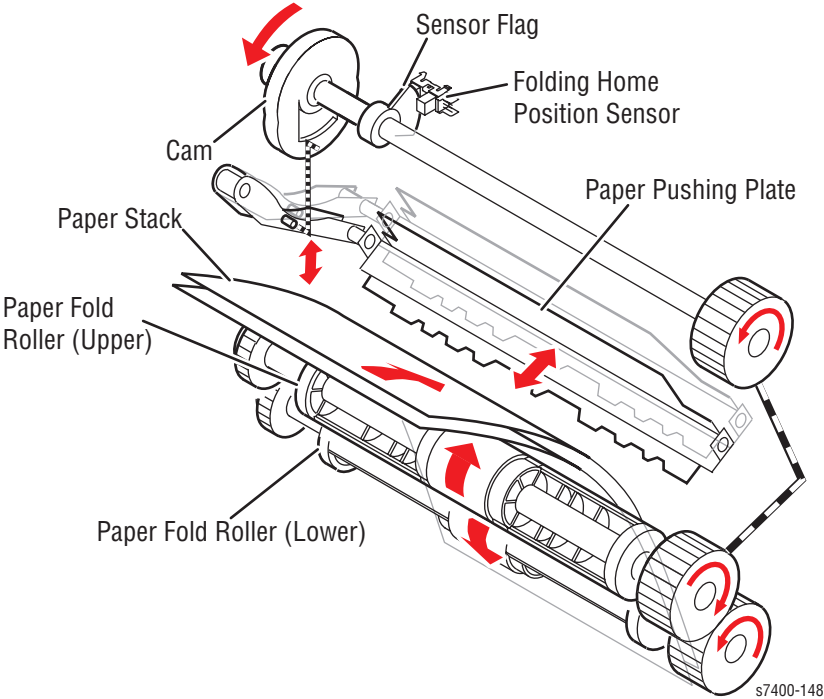


# Paper Fold System

The paper fold mechanism consists of a guide plate, paper fold rollers, and a paper pushing plate. The Staple/Fold Motor drives the guide plate, paper-fold rollers, and paper-pushing plate. A combination of gears and cams transfer the drive force while the Staple/Fold Motor Sensor monitors the operation.

Until the paper stack reaches the folding position, the guide plate covers the paper fold rollers to act as a paper path through which the paper stack feeds into the Saddle Unit, preventing the paper stack from touching the rollers. A Folding Home Position Sensor detects the positions of the paper-fold rollers and paper-pushing plate.

The bind delivery rollers deliver and folds the paper stack with the paper fold rollers. The Staple/Fold Motor drives the bind delivery rollers. A Bind Tray Sensor on the bind tray can then detect the presence of the paper stack.



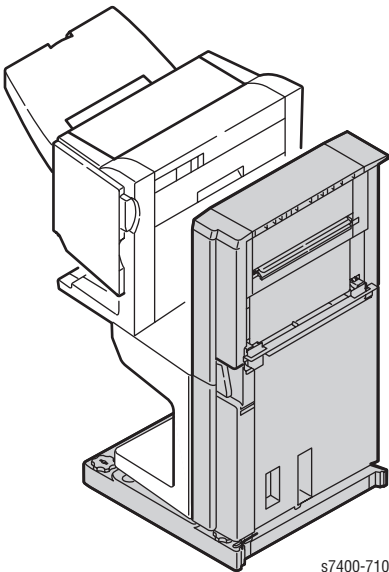
## Saddle Unit Components

Component	Function
Stack feed rollers	Rotates to feed the stacking mechanism.
Paper pushing plate	Pushes the center of the paper stack toward the feed rollers.
Stapling mechanism	Performs stitching (term for center punching).
Swing guide	Places the paper stack between the delivery rollers.

# Inverter Unit

The Inverter Unit receives paper from the printer and physically inverts the paper for stacking or folding. The Inverter is a self-enclosed unit which connects on a common base with the Finisher itself. The entire Finisher/Inverter can then physically connect to the printer and tray units with a sliding mount.

The Inverter receives instructions from the printer and/or Finisher Controller Board. Through various sensors, switches, solenoids, and motors, it moves the selected media through the paper path to invert and position the paper for stacking or folding.



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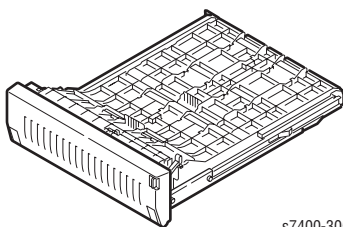
## Inverter Unit Components

Component	Function
Inverter controller board	Receives commands from the printer and controls all elements of Inverter operation.
Sensors and switches	Detects the position of the paper through all phases of the inversion process.
Solenoids and clutch	Receives commands from the Inverter controller board to determine the paper path (invert or not).
Delivery motors	Physically moves the media through the designated paper path.

# Printer Options

## Duplex Unit

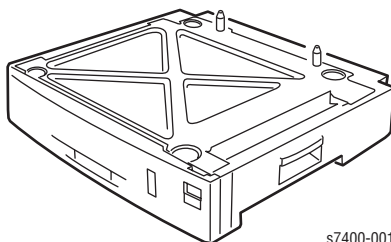
The Duplex Unit adds two-sided printing. The Duplex Unit attaches to the left side above Tray 1 using two twist locks. Installation of the Duplex Unit requires that the Exit 2 Module also be added to provide reverse drive. Electrical connection to the printer is made by an interface cable.



s7400-305

## 550-Sheet Feeder

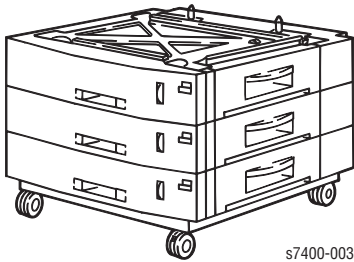
The 550-Sheet Feeder increases the input capacity of the printer. The feeder attaches below Tray 2 with four screws. When used in combination with the 1650-Sheet Feeder, the 550-Sheet Feeder is installed between the printer and 1650-Sheet Feeder. Up to four optional 550-Sheet Feeders per printer can be installed, totaling six universal trays (Trays 2~6). However, when the 1650-Sheet Feeder (HCF) is installed, only one additional 550-Sheet Feeder is allowed between the HCF and the printer. Electrical connection to the printer is made by a single interface connector.



s7400-001

# 1650-Sheet Feeder

The 1650-Sheet Feeder combines three, 550-sheet trays. Control signals reach the 1650-sheet feeder through a single connection. The sheet feeder is secured to the print engine or 550-Sheet Feeder with four screws located under the front and rear edges of the tray.

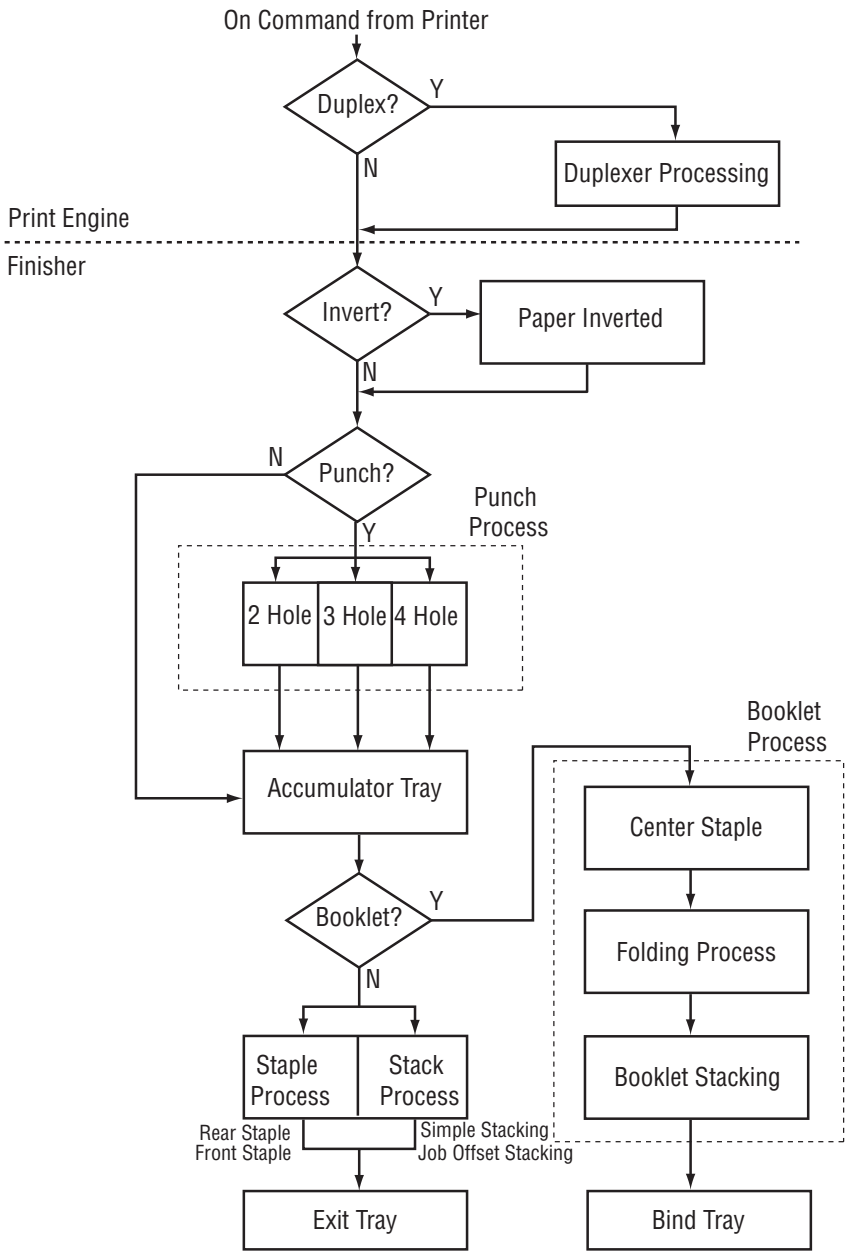


s7400-003



# Finishing Process Summary

The following illustration shows the various printing processes and process decisions that the finishing components handle on command from the printer.



s7400-546

The finishing processes include six major functions:

1. Inverting
2. Folding
3. Punching
4. Stacking
5. Stapling
6. Delivery

## Inverting

The sole purpose of the inverter function is to position the paper for stacking or folding. On command from the printer, The Inverter receives paper from a printer or a Duplex Unit for inversion, if needed, and sent on to the Finisher.

The Inverter receives commands from the printer to receive and position entering media. A Paper-in sensor detects the presence of paper. If the paper is not to be inverted, it merely transfers to the Finisher. If the paper is to be inverted or prepared for stacking or folding, a solenoid is energized to divert the paper into the inversion path. Sensors in the upper and lower paper paths detect the leading and trailing edges of the selected media. At the end of the paper path, the paper is then sent on to the Finisher.

## Punching

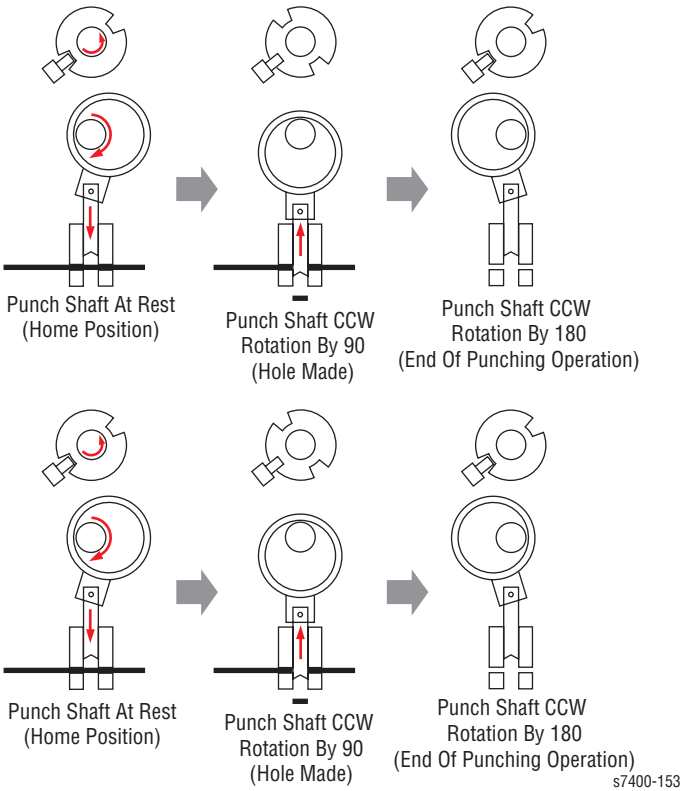
The Punch Unit is located in the pickup assembly of the Finisher. It is designed to punch 2-holes, 3-holes, or 4-holes in sheets sent from the printer. When the trailing edge of a sheet reaches the Punch Unit, the inlet roller of the Finisher assembly stops the sheet long enough to punch a hole along the trailing edge of the sheet. The Punch Unit is available in two unit types to accommodate the country of installation: 2- and 3-hole (punch Unit-K1), or 4-hole (Unit-G1 or H1).

The Punch Motor stops in relation to the count of the clock pulses from the Punch Motor Clock Sensor. When the punch shaft rotates 180 degrees from its home position, it initiates a single punching operation.

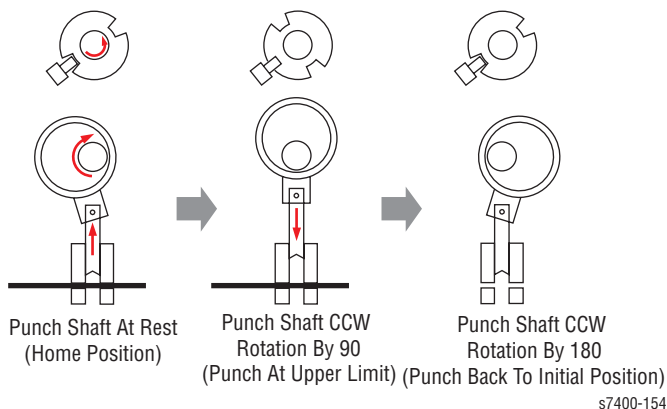
The 2-hole and 4-hole types punch a hole when the punch shaft rotates 180 degrees from the home position, causing the punch to make a single rotation. The 2 and 3-hole type punches a hole, but the circumference of the punch shaft is divided into two (one-half for the 2-hole punch and one-half for the 3-hole punch).

The Punch Motor, Punch Unit, and sensors comprise the Punch Slide Unit, which moves to the front/rear to accommodate the selected paper size. The Finisher Punch Transfer Motor is a stepping motor that drives the movement to the front or rear.

■ **4-Hole Type** - The punching operation for the first sheet ends when the punch shaft rotates 180 degrees and the Punch Home Position Sensor activates. The punching operation for the second sheet ends when the punch shaft rotates 180 degrees in reverse and the Punch Home Position Sensor activates.



- **2-Hole, 3-Hole Type** - To make two holes, the punching operation for the first sheet ends when the punch shaft rotates 180 degrees (half-circumference) and the Punch Home Position Sensor activates. At this time, the 3-hole punch rotates once on a half-circumference of the punch shaft. The punching operation for the second sheet ends when the punch shaft rotates 180 degrees counterclockwise and the Punch Home Position Sensor activates (half-circumference). At this time, the 3-hole punch then releases itself from the punch process on the other half circumference of the punch shaft.



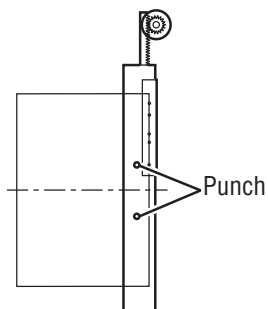
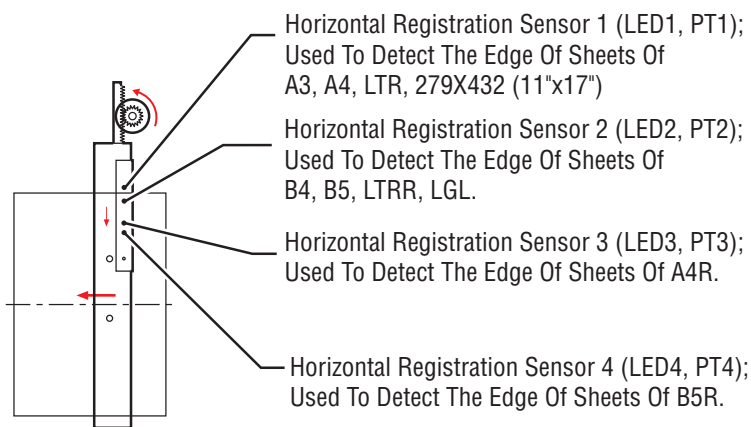
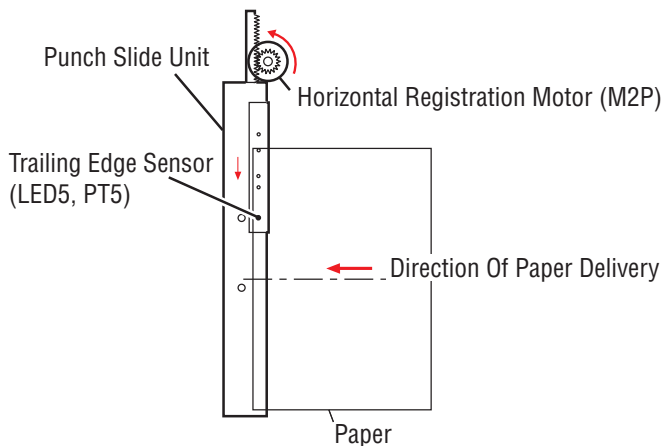
## Finisher Punch Transfer Operation

The Finisher Punch Transfer Motor provides horizontal registration for the punch slide unit. The Finisher Punch Transfer Home Position Sensor detects the home position of the punch slide unit. The punch slide unit detects the trailing edge of sheets with the trailing edge sensor (LED5, PT5) and the horizontal registration sensors (LED1 through 4, SREG1 through 4). This action moves the unit to the desired position matching the trailing edge of each sheet (in relation to the size of the sheet).

The horizontal registration operation takes place as follows:

1. When the trailing edge sensor (LED5, PT5) detects the leading edge of a sheet from the printer, the Finisher Punch Transfer Motor begins to move the punch slide unit toward the front.
2. When the horizontal registration sensor (LED1 through 4 for the appropriate the paper size from the printer) detects the leading edge of the sheet, the Finisher Punch Transfer Motor moves to the specified position then stops the slide unit.
3. When the trailing edge sensor (LED5, PT5) detects the trailing edge of the sheet, the drive of the Feed Motor stops, also stopping the sheet. Then, the Finisher Punch Motor energizes to punch holes in the sheet.

4. When the punching operation ends, the Feed Motor moves the paper through the rest of the paper path. The Finisher Punch Transfer Motor then rotates in reverse to return the slide unit to home.
5. For each sheet that arrives in succession, the Punch Slide Unit returns to its home position and repeat steps 1 through 4 (the following illustration shows the top view of the Punch Slide Unit in the Finisher).

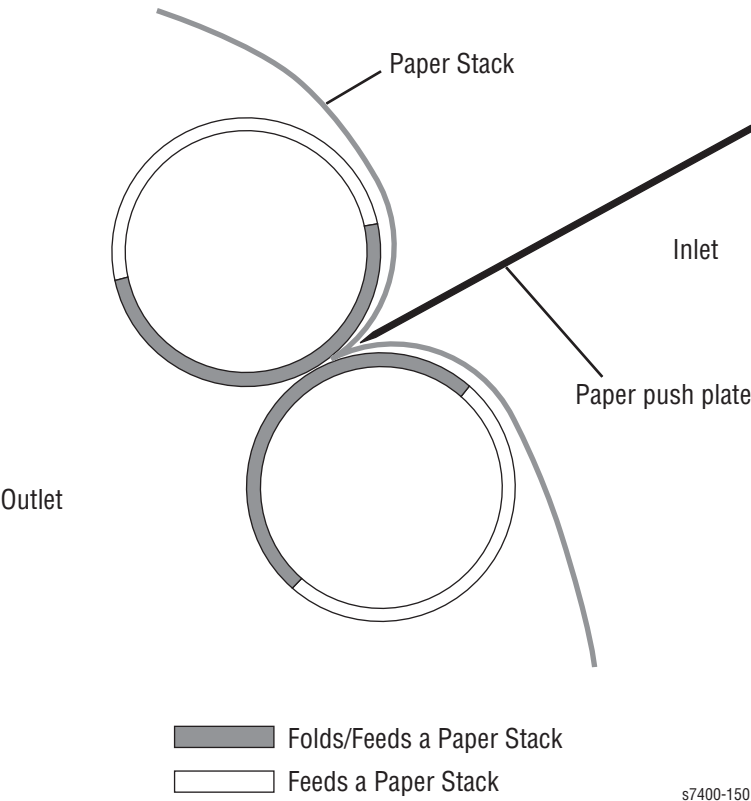


s7400-155

# Folding

Finisher paper fold rollers and a paper pushing plate are the main assemblies for the paper folding process when creating a booklet. Concurrent with the start of the stack feed roller rotation, the paper pushing plate pushes the middle of the paper stack into the gap between the paper fold rollers. When the paper stack is fed about 10 mm into the rotating paper fold rollers, the paper pushing plate returns to the home position. The paper stack is then delivered to the Bind Tray using the paper fold rollers and bind delivery rollers.

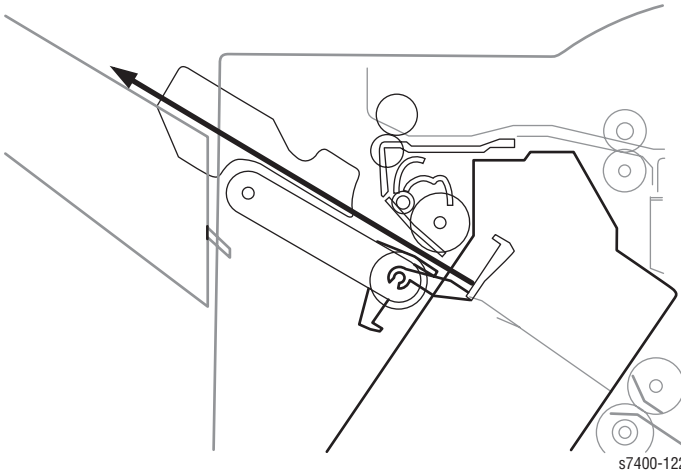
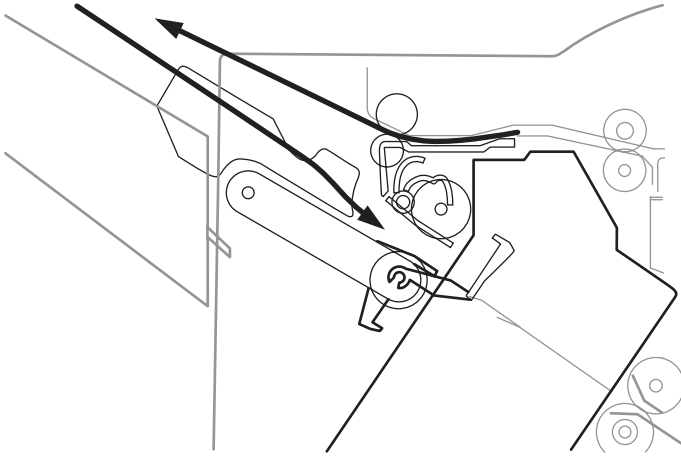
Because of the large area size of the rollers, the paper stack is fed without paper creases. The large size of the area also allows the paper stack to fold while being fed.



# Stacking

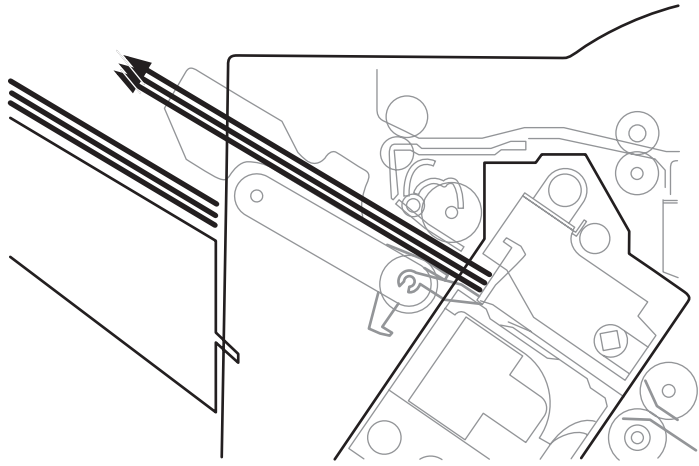
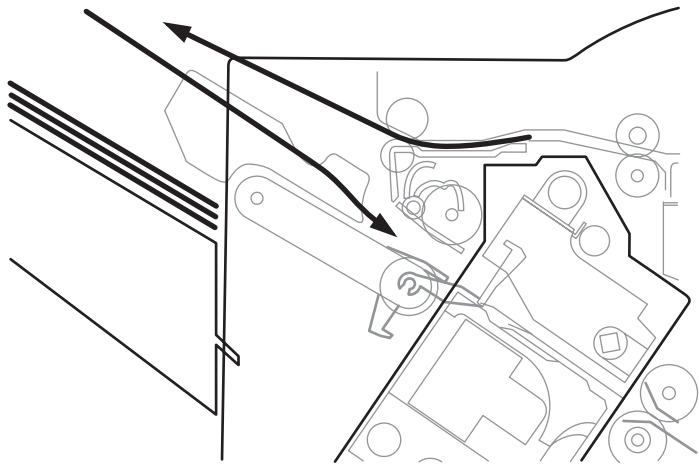
There are two types of stacking presented to the delivery tray:

- **Simple Stacking** - The unit pulls in the sheet to the processing tray and then delivers it to the delivery tray.

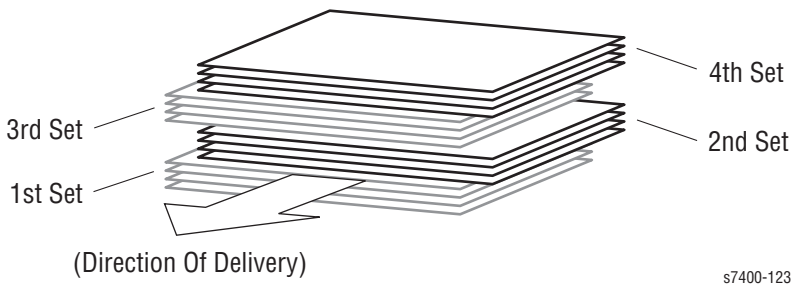


s7400-122

- **Job offset** - The machine places the sheet into the processing tray. It then moves the sheet to the front or the rear using the aligning plate. When it has deposited a specific number of sheets, it delivers them as a stacked set.)



Results Of Offset Delivery (4 Jobs)

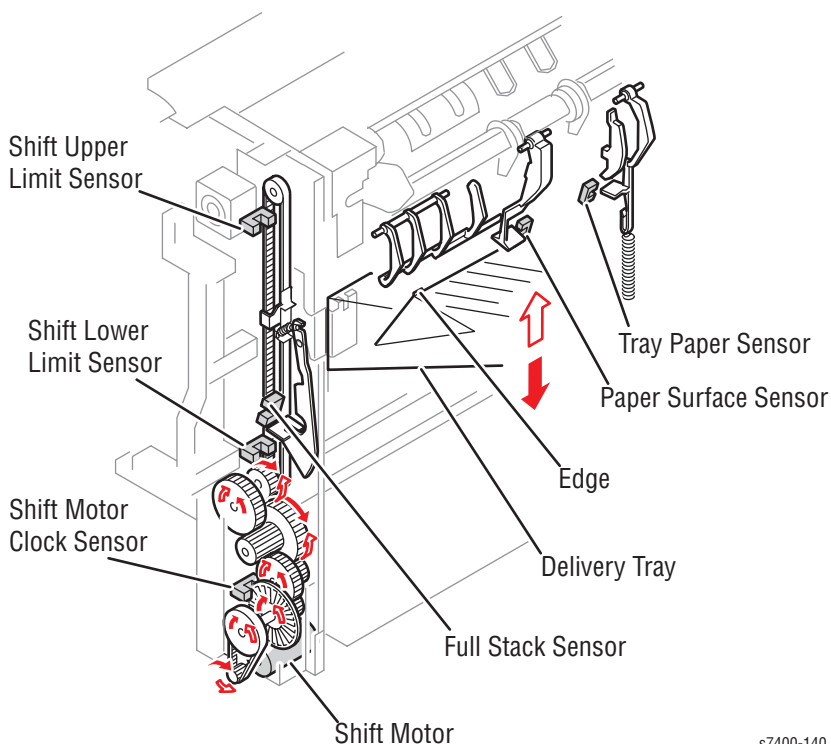


s7400-123



When the number of sheets stacked on the processing tray reaches a specified value, the sheets are delivered in stack form. Even if the unit never reaches a specified value, stacked sheets are temporarily delivered when 25 sheets of large-size paper (300 mm or longer) or 50 sheets of small-size paper (299 mm or shorter) have been stacked.

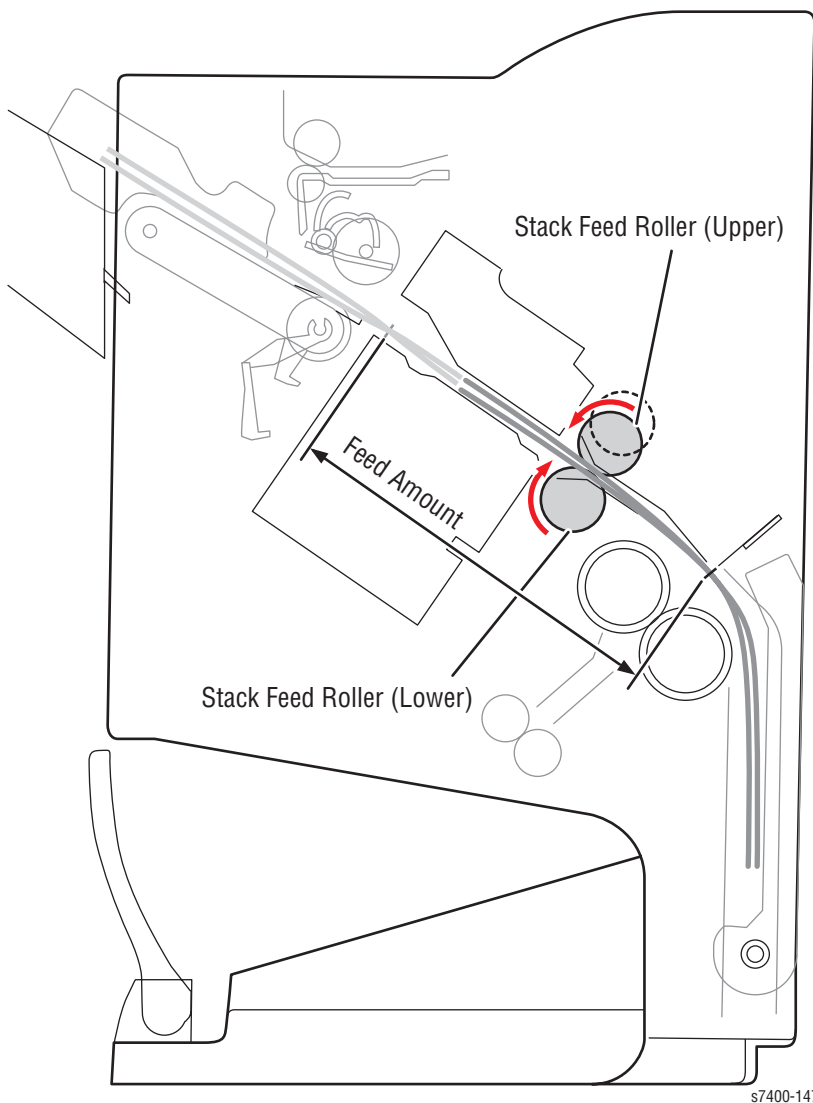
The finisher also uses a Tray Paper Sensor to detect the presence or absence of paper in the stack tray. It also includes a Full Stack Sensor to detect overstacking.



s7400-140

## Stacking in Booklet Mode

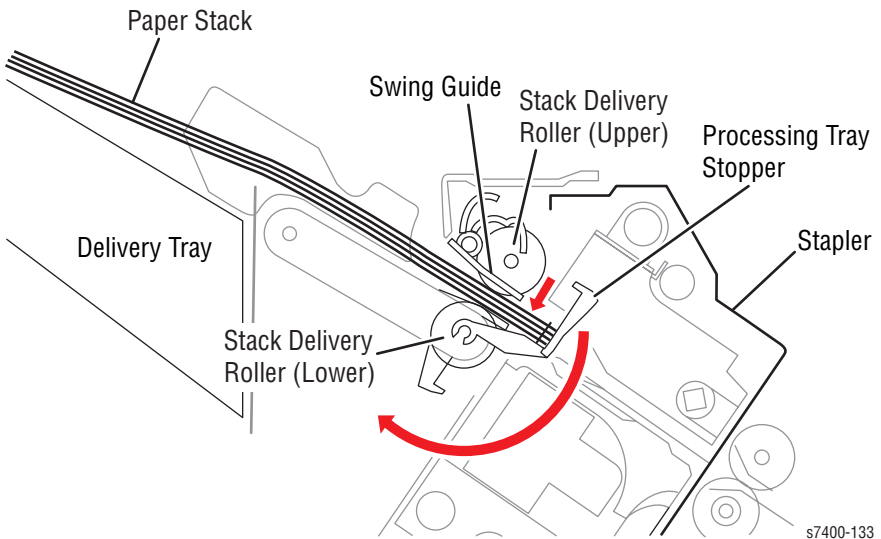
In the Booklet stitching format, the stack feed system feeds up to 50 sheets of stitched paper stack to the folding position. When stitching is complete, the Feed Motor rotates until the upper stack feed roller begins to descend. After the paper stack is inserted between the stack feed rollers, the Bind Clutch activates and rotates the Feed Motor in the forward direction, feeding the paper stack to the middle position for folding. The feed amount is equivalent to the number of pulses necessary to drive the Feed Motor until the paper stack is ready for folding.



# Stapling

After stacking and alignment of paper on the processing tray is complete, the finisher controller board moves the stapler for stapling according to the specified stapling position. When the controller specifies rear 1-point stapling, the stapler does not move; it staples while in the standby position. If a different stapling option is selected, the stapler moves forward and the processing tray stopper leans to the forward position.

The Finisher Slide Motor moves the stapler unit. The Slide Home Position Sensor detects when the unit reaches its home position. The stapler waits at the back end of the stack irrespective of the staple mode and paper size.



The position of the stapler depends on the staple mode:

- **Front 1-point stapling** - The stapler moves to the front stapling position of the paper for stapling and then returns to the standby position.
- **Rear 1-point stapling** - The stapler moves to the opposite end (rear) of its travel length for stapling and then returns to the standby position.
- **Middle 2-point stapling** - The stapler moves to the rear stapling position first, then to the front stapling position, and then returns to the standby position.

The Staple Empty Sensor detects the presence of a staple cartridge in the machine as well as the presence of staples in the cartridge. A Staple Top Position Sensor determines when to push staples up to the top of the staple cartridge.

## Delivery

The Finisher Unit includes a Delivery Tray, and the Saddle Unit includes a Bind Tray. The Bind Tray is a fixed unit where all folded paper stacks are delivered. The Bind Tray includes a Bind Tray Sensor to detect the presence of paper. The delivery tray in the finisher unit moves up and down using a Lift Motor.

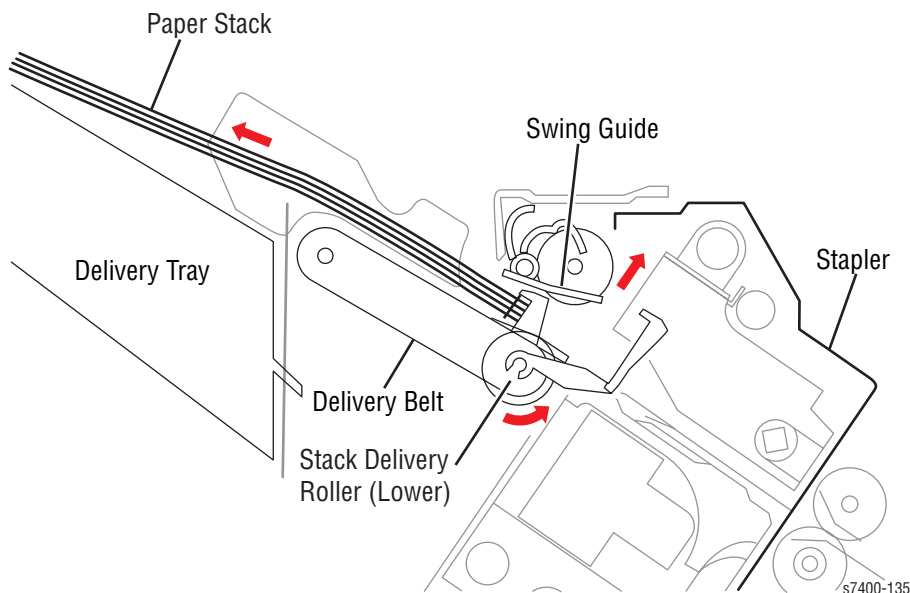
The Paper Surface Sensor detects the home position of the delivery tray. If paper is already stacked on the delivery tray, the home position is sensed on the top surface of the stacked paper. When the paper coming from the processing tray stacks on the Delivery Tray, the Lift Motor receives a specified number of pulses, which causes the Delivery Tray to lower to the home position. The Lift Motor Clock Sensor detects when the tray reaches the home (lowest) position.

The Shift Upper Limit Sensor detects the upper limit of the Delivery Tray. In an upper limit condition, the Finisher Controller Board stops sending commands that lift the Lift Motor. Conversely, the Shift Lower Limit Sensor detects the lower limit of the Delivery Tray. In a lower limit condition, the controller board stops the Lift Motor.

## Delivery after Stapling

When stapling completes, the Finisher Controller Board drives the Delivery Motor in the forward direction to feed the paper stack. When the Delivery Belt Home Position Sensor reaches the OFF position, the delivery stack is full.

The Slide Motor is then driven to return the Stapler Unit back to the standby position, which initiates the Delivery Motor drive. Then, the paper stack is delivered to the tray.



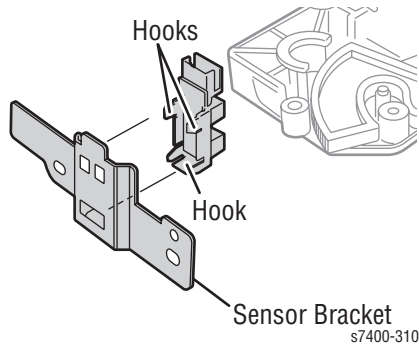
# Sensors

The Finisher/Inverter, Duplex Unit, and paper trays contain sensors of various types that perform a variety of functions. One group of sensors track the progress of the paper along the paper path and detects if a paper jam occurs. Other sensors stop printer activity if a door is open (interlock), detect the presence and size of media in the trays, and monitor the fusing temperature.

## Photo Sensors

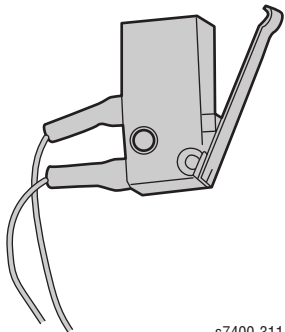
Two types of photo sensors are used, photo-reflective and photo-receptive. Photo-reflective sensors use light reflected back from an object to detect its presence. Photo-receptive sensors use an actuator or the object itself to block the light path to detect an object or condition.

Photo-reflective sensors have the light emitter and light receiver aligned on a single surface. Output of the photo-receptor is High ( $> +4.5$  V) when light is being reflected back and Low ( $< +3$  V) when it isn't. Photo-receptive sensors consist of a LED in one arm of a U-shaped holder, and a photo-transistor in the other arm. When the sensing area is vacant, nothing is between the arms of the sensor, light falls on the photo-receptor sending the signal High. If the light is interrupted, the photo-transistor goes Low.



# Microswitches

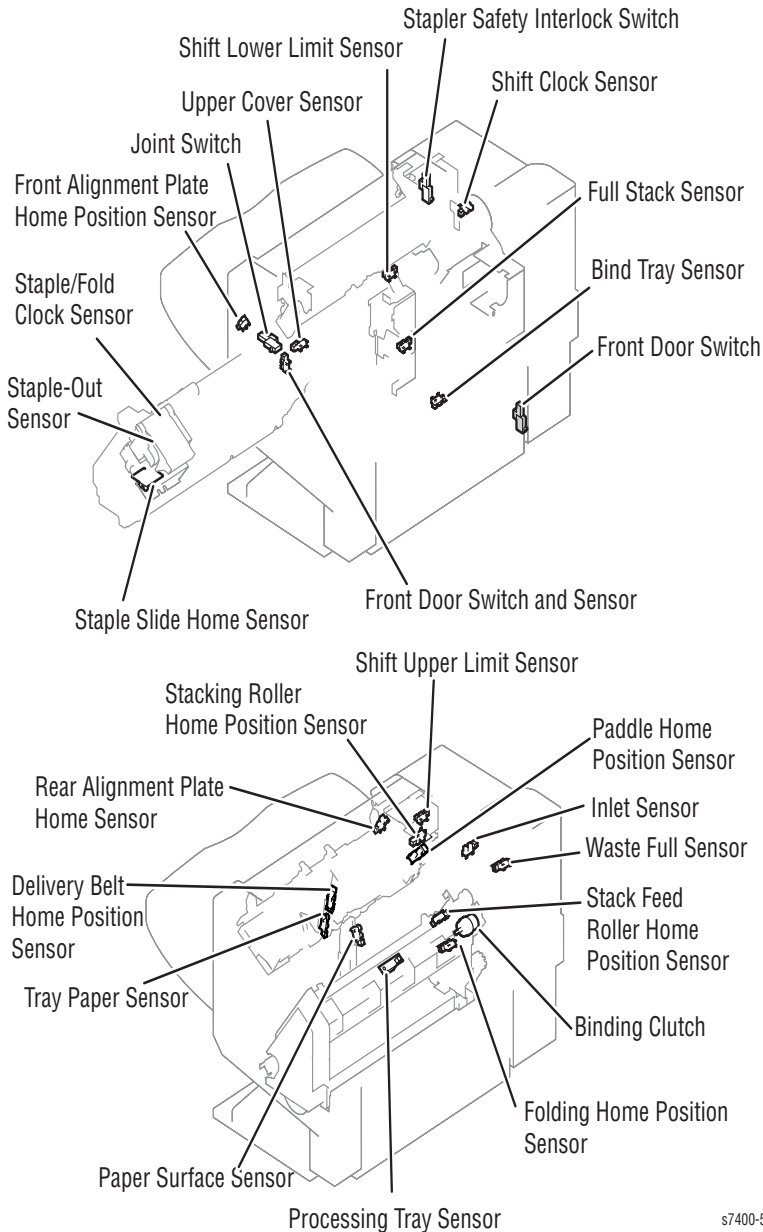
Microswitches are used primarily as paper size sensors and cover interlocks. They are in a normally open state, and close when actuated. A bank of microswitches detect paper size in the universal trays. Microswitches also employ hooks or catches for retention in the bracket or frame.



s7400-311

# Finisher Paper Path Sensors

The following illustration identifies the various sensors located in the Finisher. Error reporting is dependent on these sensors as the paper moves through the paper path.



s7400-542

## Sensor Function

Sensor	Function
Joint Switch	Prevents the power supply from placing hazardous voltages in accessible areas when the Finisher is undocks from the Printer.
Front Door Switch	Prevents the power supply from placing hazardous voltages in accessible areas when the Front Door (Door J) is removed.
Front Door Sensor	Detects when the Front Door is open or removed.
Inlet Sensor	Detects the presence of media in the finisher paper path.
Tray Paper Sensor	Detects when the paper tray is removed from the Finisher.
Paper Surface Sensor	Detects media in the home position of the delivery tray.
Upper Cover (Door H) Sensor	Detects when the Upper Cover (Door H) is open or removed
Shift (Upper) Limit Sensor	Detects the upper limit of the delivery tray stack.
Shift (Lower) Limit Sensor	Detects the lower limit of the delivery tray stack.
Lift Motor Clock Sensor	Detects clock pulses for the stacking operation.
Full Stack Sensor	Detects overstacking of media in the delivery tray.
Processing Tray Sensor	Detects the processing stack within the delivery path.
Aligning Plate (Front) Home Position Sensor	Aligns one side of the selected paper with the entrance into the paper path.
Aligning Plate (Rear) Home Position Sensor	Aligns one side of the selected paper with the entrance into the paper path.
Stack Feed Roller Home Position Sensor	Detects the initial home position of the stack feed rollers.
Waster Full Sensor	Detects the full condition of the punch waste unit.
Swing Guide Home Position Sensor	Detects the home position for the Swing Guide.
Delivery Belt Home Position Sensor	Detects the end location of the delivery rollers.
Paddle Home Position Sensor	Detects when it is necessary to drive the paddle and feed the next sheet of paper.
Stapler Safety Interlock Switch	Protects current overloads in case of a staple jam.
Staple/Fold Cock Sensor	Counts timing pulses during staple and fold operations.



## Sensor Function (Continued)

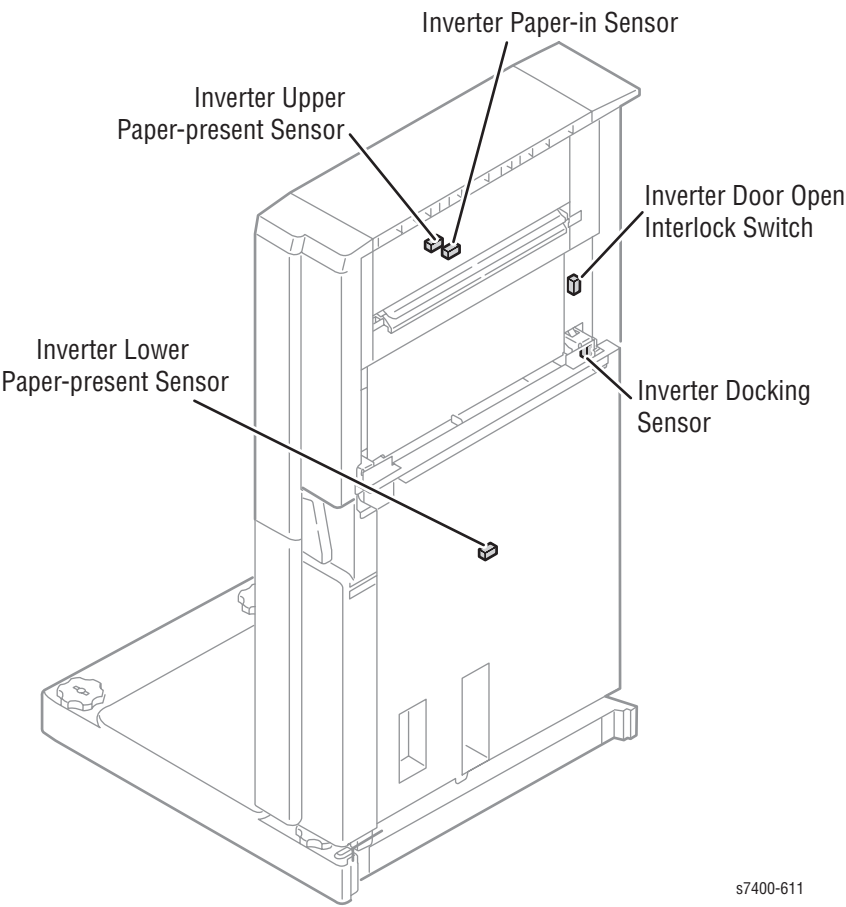
Sensor	Function
Folding Home Position Sensor	Detects the positions of the paper fold rollers and the paper pushing plate.
Bind Tray Sensor	Detects when paper is present in the Saddle Unit's bind tray.
Folding Position Sensor	Detects the leading edge of the paper stack.

### Note

The punch assembly includes up to five light-receiving transistors (photosensor board) mounted over the inlet paper path of the Punch Unit. The same number of LEDs are mounted under the path, as well. The front-most sensor (LED5, PT5) detects the trailing edge of each sheet. The remaining four LEDs (LED1 through LED4, PT1 through PT4) are horizontal registration sensors which detect the rear position of sheets when punching holes.

# Inverter Sensors

The following illustration shows the general location of the Inverter sensors. The topics in this section describe the disassembly for each sensor..



s7400-611

## Sensor Function

Sensor	Function
Inverter Docking Sensor	Detects when the Inverter interconnects with the Printer.
Inverter Door Open Interlock Switch	Detects when the Inverter Door (F) is open.

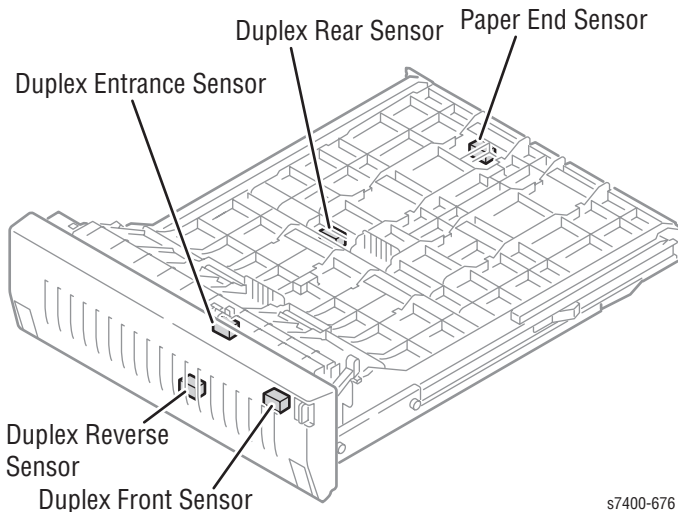
## Sensor Function (Continued)

Sensor	Function
Inverter Upper Paper-Present Sensor	Detects the leading edge of the selected paper size.
Inverter Lower Paper-Present Sensor	Detects the trailing edge of the selected paper size.
Inverter Paper-in Sensor	Detects the presence of media in the Inverter.

## Duplex Sensors

The Duplex Unit receives media diverted to the Side Exit by the Exit Gate. The media is detected by the Duplex Entrance Sensor and drawn into the Duplex Unit. The media is inverted and exits the Duplex Unit just above Registration Roller #2. Media moves through the Duplex Unit as follows:

1. After Side 2 is printed, the Exit Gate Solenoid switches the Exit Gate to its side output position. This directs the sheet downwards toward the Duplex Unit.
2. As the sheet reaches the Duplex Entrance Sensor, roller 1 turns, drawing the media into the lower portion of the Duplex Unit
3. After the trailing edge of the media clears the Duplex Entrance Sensor, and with the Duplex Reverse Sensor High, the Entrance Roller is reversed and the Duplex Solenoid is activated to position the Duplex Gate to direct the inverted media into the upper portion of the Duplex Unit.
4. The Duplex Rollers transport the media out of the Duplex Unit and into the printer where Side 1 is printed. This portion of the duplex path is monitored by the Front and Rear Duplex Sensors.



s7400-676

Duplex sensors include:

- **Duplex Entrance Sensor**  
Detects the leading edge of the media and signals the Duplex Motor to begin rotation in the forward direction.
- **Duplex Reverse Sensor**  
Detects media in the lower portion of the Duplex Unit and signals the Duplex Motor to reverse rotation.
- **Duplex Front and Rear Sensors**  
Monitor media transport through the upper portion of the Duplex Unit.

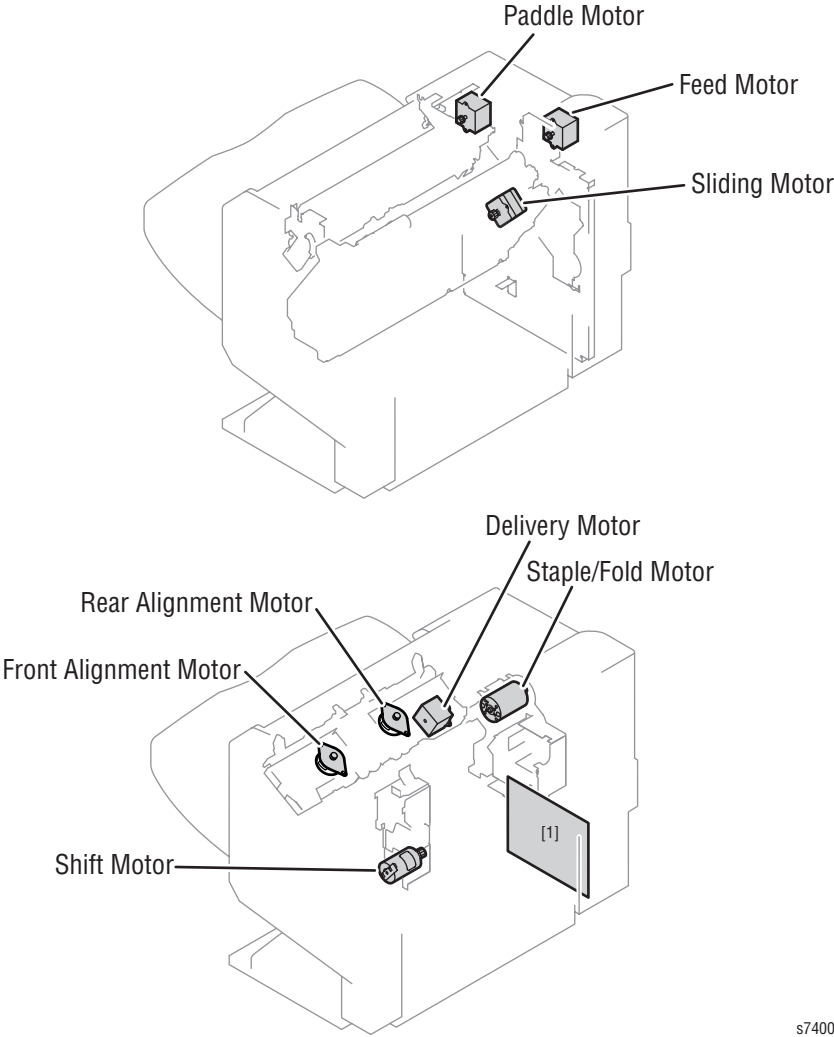
## Optional Tray Sensors

The paper supply and path for the optional trays involve these sensors (see page 5-133 for detailed illustrations and sensor location):

- **Door C Detect Sensor**  
Detects presence of media in the tray based on the position of the Actuator.
- **Registration Sensor**  
This sensor detects media as it arrives at the Registration Rollers.
- **Feed-Out Sensor**  
This sensor detects the media as it leaves the Tray 3 Feed Rollers.
- **No Paper Sensor**  
The actuator lowers as print media is used in the tray. When the actuator lowers to a pre-determined position, it blocks the sensor to trigger a low paper status.

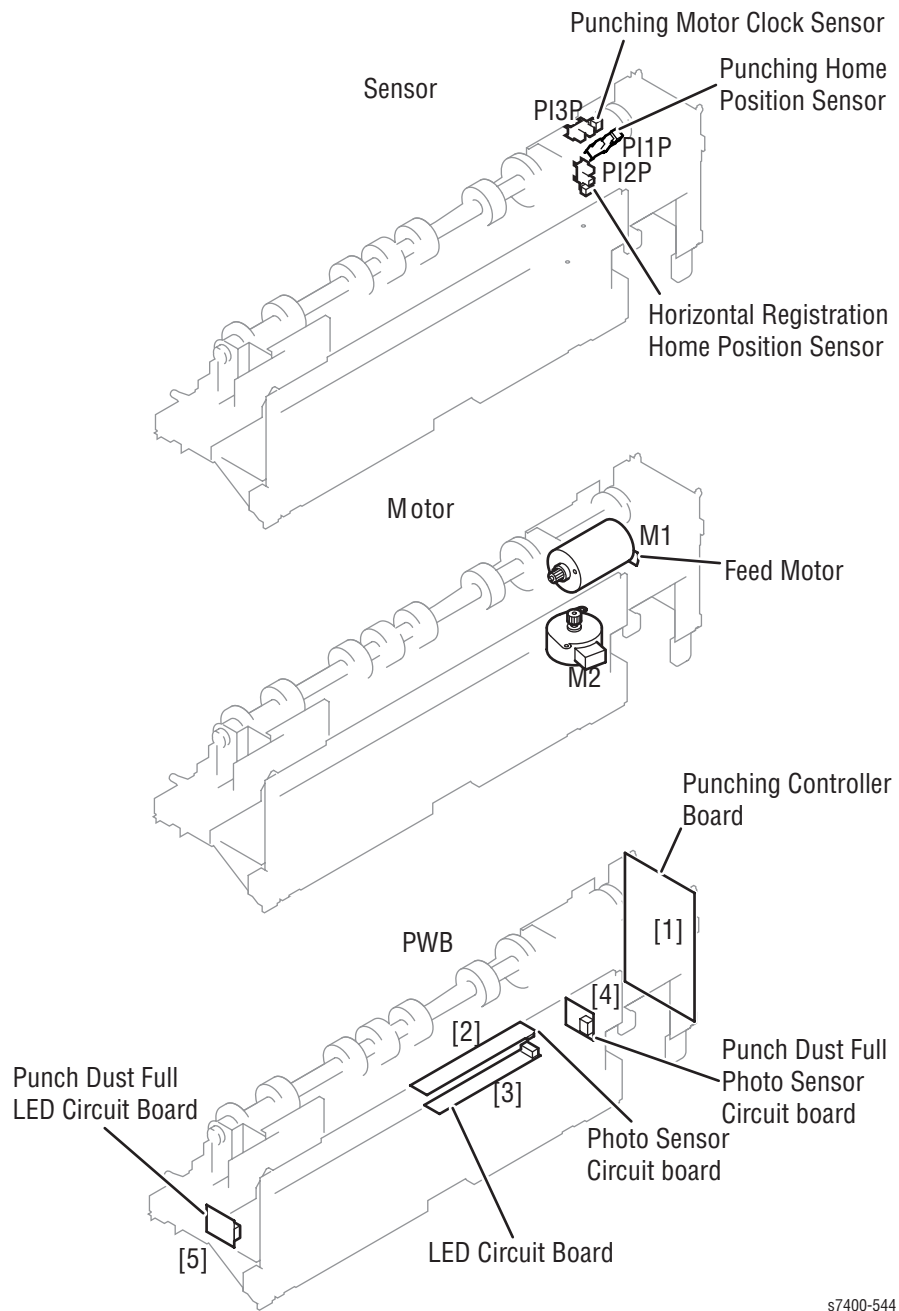
# Motors, Rollers, Solenoids, and Clutches

## Finisher Motors



s7400-543

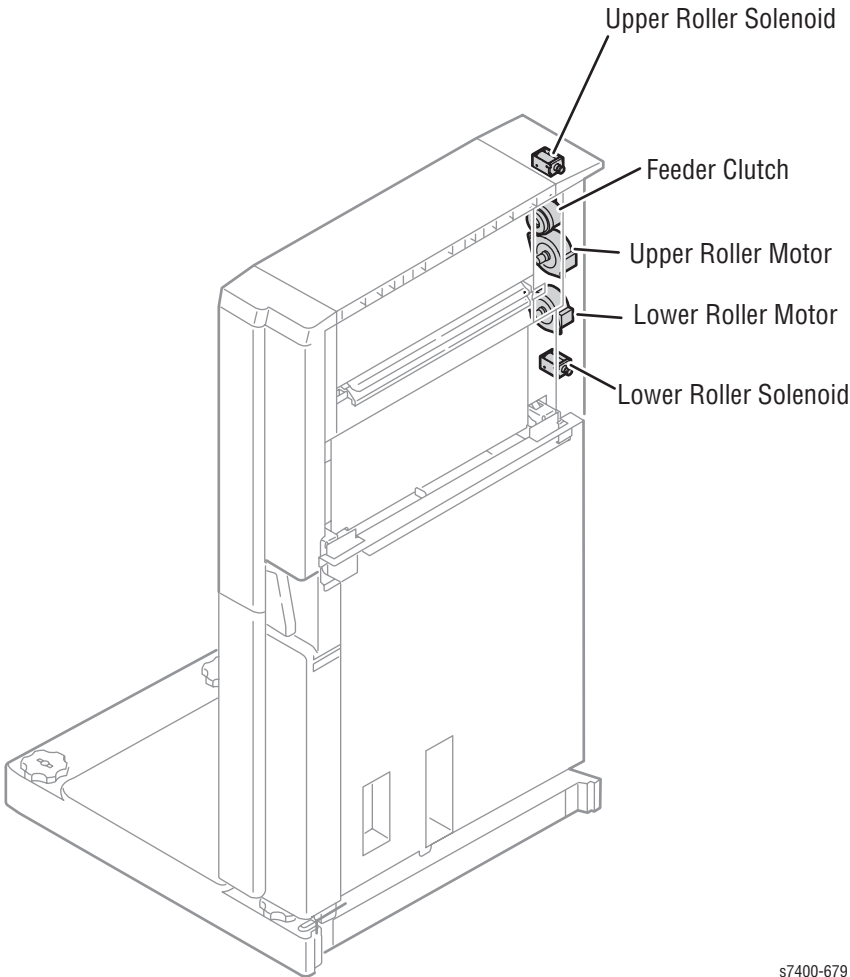
Punch Unit Solenoids and Motors



s7400-544

# Inverter Solenoids and Motors

The Inverter motors move the rollers to move the media throughout the paper path. The Feeder Clutch, on command from the printer, engages the motors. The Inverter Solenoids, also on command from the printer, energize the upper and lower paper rollers.

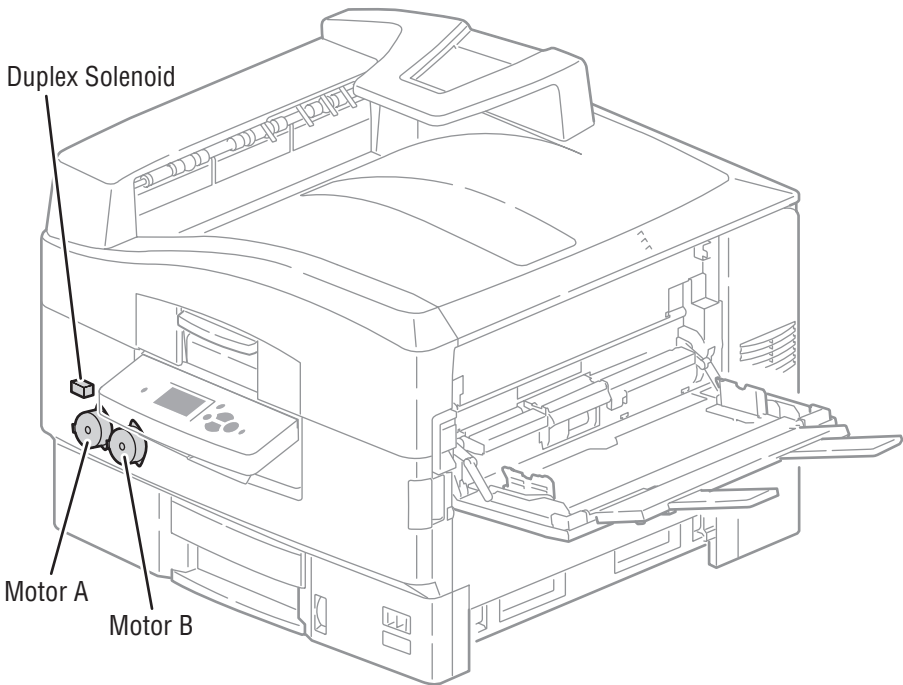


s7400-679

# Duplex Solenoids, Rollers, and Motors

The Duplex Unit receives media diverted to the Side Exit by the Exit Gate. The media is detected by the Duplex Entrance Sensor and drawn into the Duplex Unit. The media is inverted and exits the Duplex Unit just above Registration Roller #2. Media moves through the Duplex Unit using the following solenoids, rollers, and motors:

- Duplex Solenoid - Activates the Duplex Gate directing media to the Duplex Transport Rollers.
- Duplex Entrance Roller - Drive the media into the Duplex Unit.
- Duplex Transport Rollers - Transport the media through the Duplex Unit and drive the sheet into the primary paper path.
- Duplex Motors - One motor drives the Duplex Entrance Roller, the other drives the Transport Rollers using a series of belts.



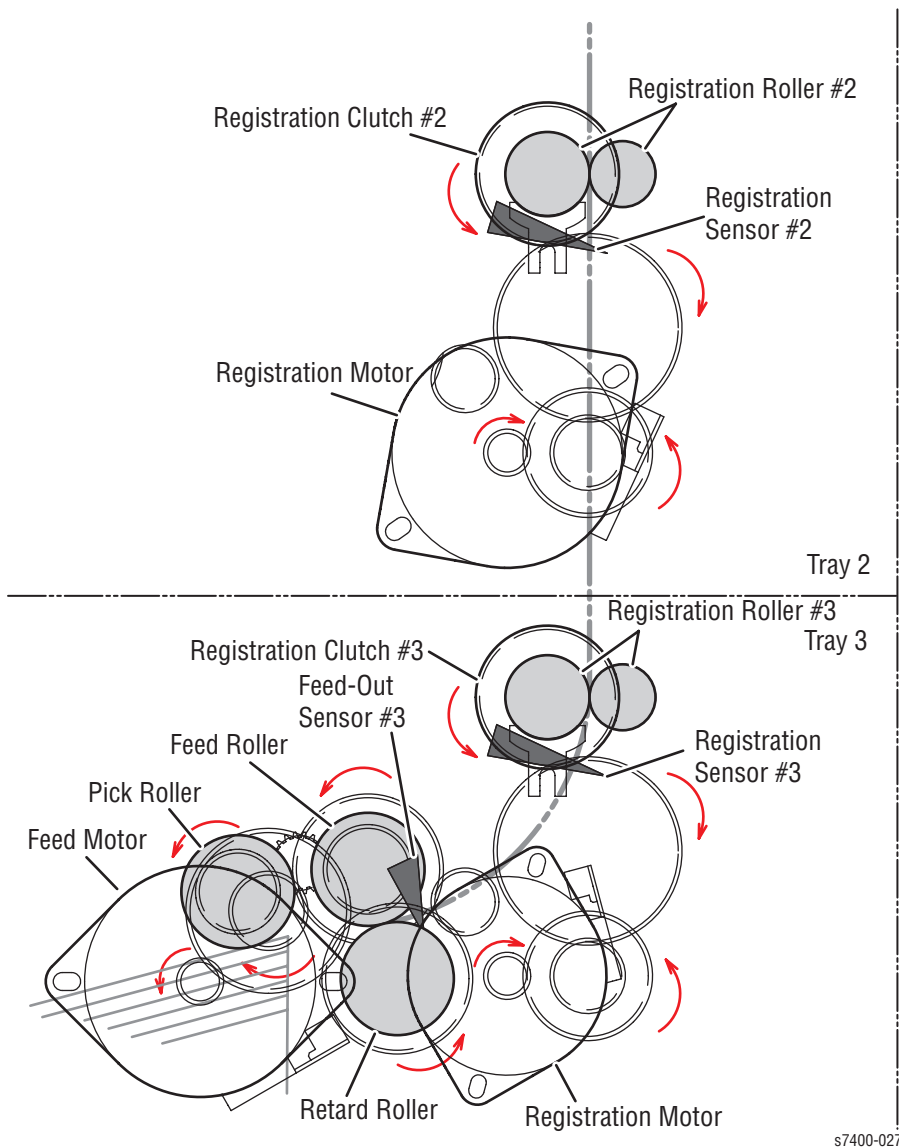
s7400-678



## Optional Tray Motors, Rollers, and Clutches

The following describes the paper path as it is fed from the optional Tray 3. Trays 4 through 6 function in the same manner. Media moves along the paper path as follows:

1. Paper loaded in the tray is detected by the Paper Size Switches.
2. The tray's Lift Motor rotates lifting the sheet to the pre-feed position detected by the Level Sensor.
3. The Feed Motor turns (CCW) driving the Feed and Pick rollers to feed the sheet from the tray into the Registration Roller.
4. The Feed-Out Sensor #3 detects the media as it leaves the Feed Rollers.
5. As the trailing edge of each sheet passes the Feed-Out Sensor #3, the Lift Motor lifts the next sheet to pre-feed position.
6. The Feed Motor rotates until the leading edge is against the Registration Roller #3 inducing a deskew buckle. Registration Sensor #3 goes High to indicate the sheet's position.
7. The sheet moves towards the Transfer Unit when the Registration Clutch #3 is engaged driving the Registration Roller #3 and Transport Rollers.
8. As the sheet reaches the Registration Roller #2, it is again aligned and detected by the Registration Sensor #2.
9. When the Registration Sensor #2 goes High, the Registration Clutch #2 is activated to move the sheet through the Registration Roller #2 to the Registration Roller #1.
10. As the sheet reaches the Registration Roller #1, it is detected by the Registration Sensor #1.
11. When the Registration Sensor #1 goes High, the Registration Clutch #1 is activated to move the sheet through the Registration Roller #1 to the Transfer Unit.
12. The sheet is detected by the Transfer Unit Entrance Sensor and the Transfer Unit Motor rotates to drive the sheet under the Imaging Units.



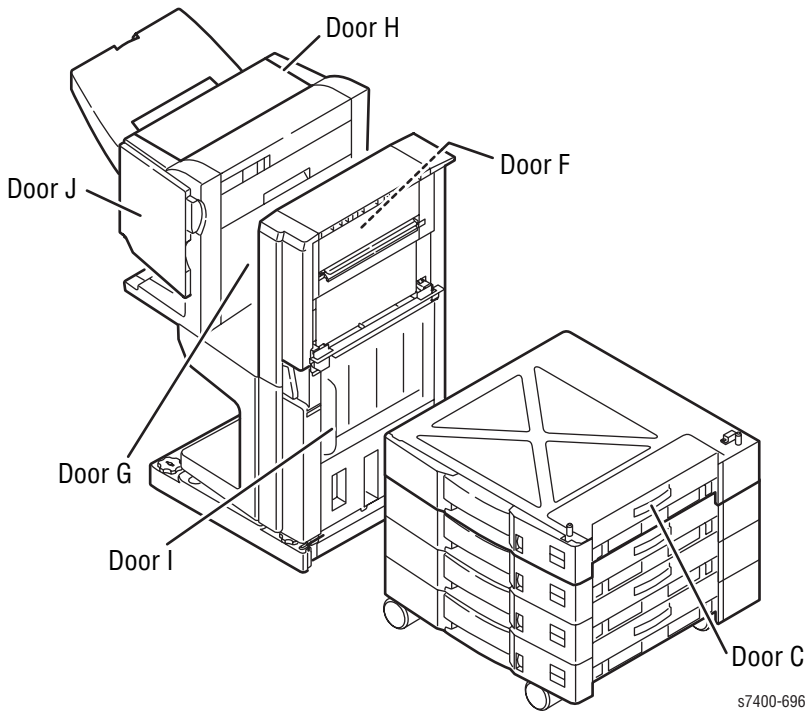
s7400-027

The paper supply and path for the optional trays involve these motors, rollers, and clutches:

- **Registration Motor**  
This motor drives the Registration Rollers to pull media from the tray into the paper path.
- **Registration Clutch**  
This clutch transfers Registration Motor drive to the Registration Roller.
- **Registration Roller**  
This roller aligns the leading edge of the sheet to correct any skew.
- **Lift Motor**  
This motor lifts the tray's base plate raising the media to the pre-feed position.
- **Feed Motor**  
This motor drives the Feed Rollers to pick paper from the tray and position it at the Registration Roller.

# Detecting Jams

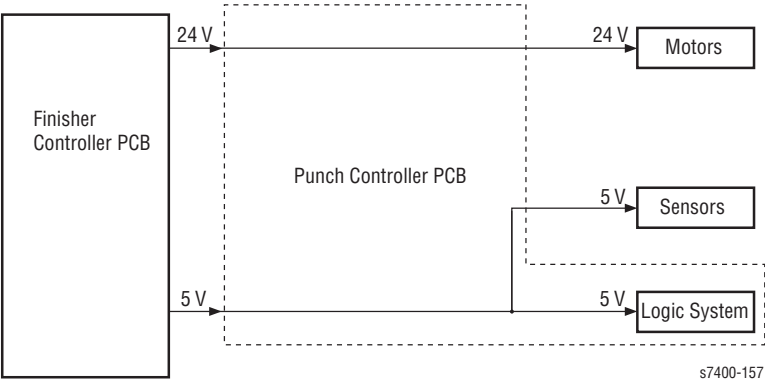
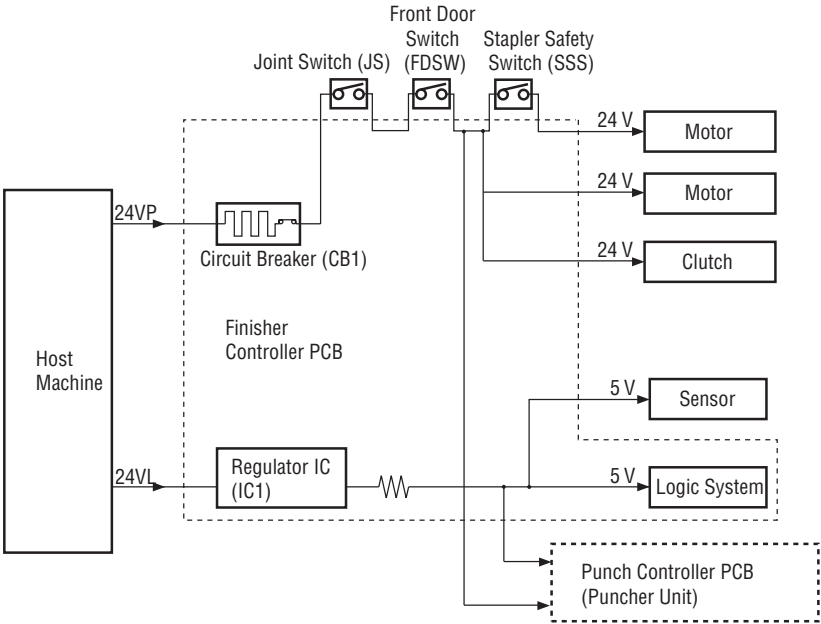
The microprocessor (CPU) on the Finisher Controller Board checks for jams in the Finisher and other optional units. The CPU identifies a jam in reference to the presence or absence of paper at a specific sensor. In general, the Jam will be generated because of sensors from one or more of the following door locations (see illustration below).



When a jam is detected, the Finisher Controller Board communicates the nature of the jam to the printer in the form of a jam code from one or more specific locations. The jam code descriptions are found when viewing the service mode of the Phaser 7400 printer. Refer to Section 3 for troubleshooting information.

# Finisher/Punch Power Supply

When the printer is powered ON and connected to the finisher, it supplies the Finisher Controller Board with two channels of 24 VDC: one for the motors and clutches, and the other for conversion into 5 VDC in the regulator IC (IC1) of the Finisher Controller Board. The 5 VDC supplies power to sensors and ICs on the printed circuit boards. If the system configuration includes a punch unit (option), power is also supplied to the Punch Controller Board.



s7400-157

## Finisher Power Supply Protection

A circuit breaker (CB1) is available to protect the 24 VDC system that drives the motors against overcurrent conditions. The 24 VDC system drives the feed motor, paddle motor, and delivery motor.

## Punch Unit Power Supply Protection

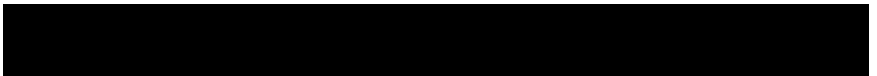
After the printer is powered ON, the Finisher Controller Board supplies the punch unit with 24 VDC and 5 VDC power. The 24 VDC power drives the motors, while the 5 VDC power supplies the associated sensors and ICs on the Punch Controller Board. The 24VDC power to the motors is removed if the joint switch (MS2) or the Front Door (Door J) switch (MS1) of the Finisher is open.

# General Troubleshooting

## In this chapter...

- Power On Self Test (POST)
- Service Diagnostics
- Error Message Table
- Troubleshooting the Options

## Section 3



# Introduction

This section covers the startup, Service Diagnostics, and power supply operations of the Finisher, Inverter, Duplex Unit, and Paper Tray options to aid in troubleshooting problems.

Troubleshooting procedures isolate a problem to a specific component or subassembly. If you go through the procedures and are still unable to solve the problem, re-read the “Theory of Operation” section for the problem area to understand how that section of the option functions.

## Using Service Diagnostics

Service Diagnostics provides tests for most electro-mechanical components. Service Diagnostics also contains test procedures. If confronted with an error that requires more than a cursory investigation to clear or when directed by a troubleshooting procedure, use Service Diagnostics to exercise selected sub-assemblies of parts in the vicinity of the reported error.

The system monitors sensors located throughout all attached options. Sensor signals are used to monitor paper handling and mechanical activity along the entire paper path. As a sheet travels along the paper path, sensors change state temporarily to indicate the sheet's presence. If the pattern of sensor state changes differs from the expected timing for a particular paper size and path, the sensor where the timing difference occurs identifies the error to report.

However, having the error message information doesn't necessarily pinpoint the problem. Sensor signals locate where, but often cannot identify why. Motors, belts, gears, solenoids, and numerous other parts are involved in paper transport. The Service Diagnostics' suite of tests and utilities are the best tools available to pinpoint the root cause behind the reported error.



# Servicing Instructions

The service checklist below is an overview of the path a service technician should take when servicing the printer and printer optional equipment.

---

## Step 1 - Identify the Problem

1. Verify the reported problem does exist. Verify failure symptoms/behavior/noises with customer/end user.
2. Check for any error codes and write them down.
3. Print normal customer prints and service test prints.
4. Make note of any print quality problems in the test prints.
5. Make note of any mechanical or electrical abnormalities present.
6. Make note of any unusual noise or smell coming from the printer.
7. Print a Status page, if the printer is able to print.
8. View the fault history under the Service Tools Menu.
9. Verify the AC input power supply is within proper specifications.

---

## Step 2 - Inspect and Clean the Printer

1. Switch Off printer power.
2. Disconnect the AC power cord from the wall outlet.
3. Verify the power cord is serviceable.
4. Remove the Imaging Unit and protect it from light.
5. Inspect the printer interior and remove any foreign matter, dust or loose toner.
  - Do not use solvents or chemical cleaners to clean the printer interior.
  - Do not use any type of oil or lubricant on printer parts unless directed to do so.
  - Do not use canned air to clean spilled toner or dust from the printer.
  - Use only an approved toner vacuum.
6. Clean all rubber rollers with a lint-free cloth, dampened slightly with cold water.
7. Inspect the interior of the printer for damaged wires, loose connections, toner leakage, and damaged or obviously worn parts.
8. Replace damaged or empty Toner Cartridges with new, customer-supplied ones.

---

## Step 3 - Find the Cause of the Problem

1. Read and understand the theory of how the printer operates.
2. Use the troubleshooting procedures to find the cause of the problem.
3. Use Service Diagnostics to check printer and optional components.
4. Use the wiring diagrams and plug/jack locator to locate test points.
5. Take voltage readings at various test points as instructed in the appropriate troubleshooting procedure.
6. Use the "Test Prints" described on page 5-4, to isolate problems to the Engine or the Image Processor Board.

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## Step 4 - Correct the Problem

1. Use the Parts List to locate a part number.
2. Use the Disassembly Procedures to replace the part.

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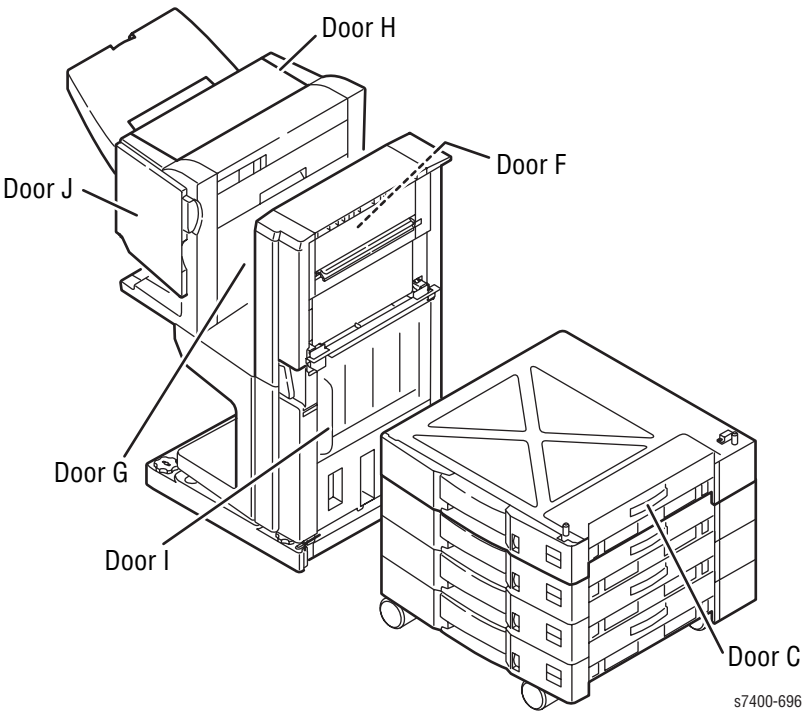
## Step 5 - Final Check

Test the printer to be sure you have corrected the initial problem and verify there are no additional problems present.

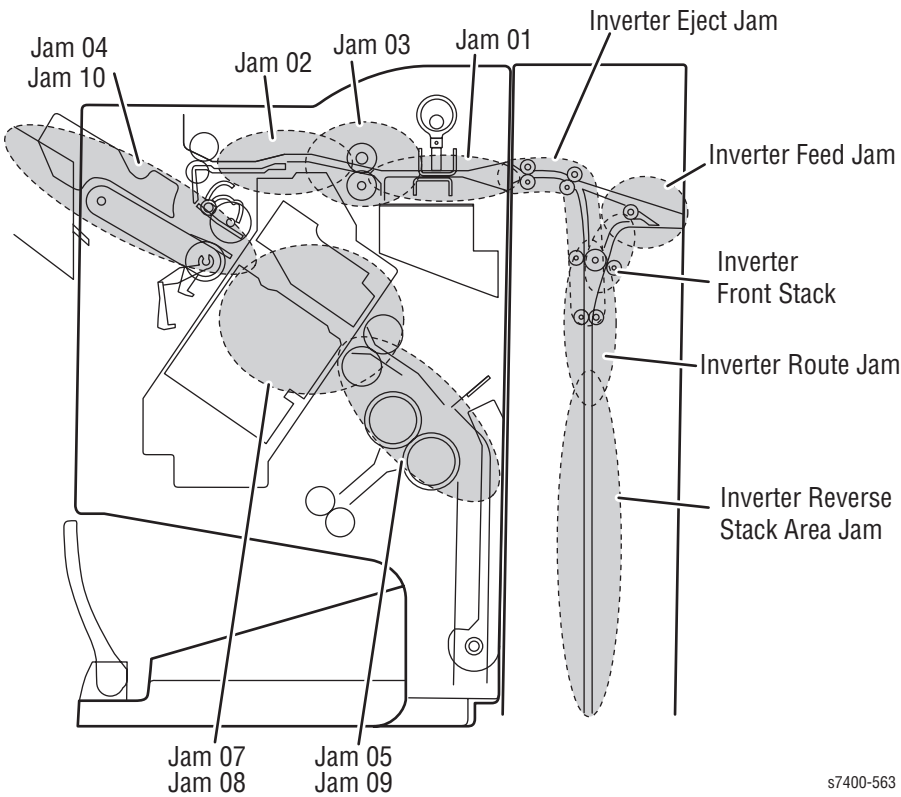
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# Jam Locator

The following illustrates the Door designators that key the jam location error codes and messages. Refer to this diagram when questions arise regarding the area of the jam.



# Jam Detection Chart



# Error Message Summary

The Error Message Summary table below lists possible errors, along with the corresponding code, and page reference for the corrective procedure for the finisher, Duplex Unit, and paper trays. The Error column lists the error code for fatal or jam errors that appears in the Help text displayed by pressing the **Help(?)** button, listed on the printer's Status page, or logged by the Service Usage Profile. The Control Panel Message column shows the message as it appears on the printer's display when the error occurs during normal operation. The Page column provides the page reference to the corrective procedure. Use this table to identify the proper procedure to clear the reported error.

## Note

When **Printer error - Contact service; report fault [nnn]** is displayed, [nnn] is replaced by a code. These codes, along with a brief description, appear in this table under Fatal Errors. Appendix A includes a complete list of codes arranged in alphanumeric order.

Error	Control Panel Message	Page
Jam Errors		
D1	Jam at Door D Open Door D to Clear	3-16
D2	Jam in Duplex Unit Pull out Duplex Unit to Clear	3-17
TC3	Jam at Duplex Entrance Open Top Cover to Clear	3-18
FN1	Jam at Finisher Punch Unit Open Door H to Clear	3-20
FN2	Jam at Finisher Door H Open Door H to Clear	3-21
FN4	Jam at Finisher Upper Output Tray Remove paper from Finisher	3-22
FN5	Jam at Finisher Saddle Stapler Open Door G to Clear	3-23
FN6	Jam at Finisher Upper Output Tray Open Door H to Clear	3-24
FN7	Jam at Finisher Stapler Open Door G to Clear	3-25
FN8	Jam at Finisher Door G Open Door G to Clear	3-26
FN9	Jam at Finisher Saddle Stapler Open Door G to Clear	3-27
FN10	Jam at Finisher Upper Output Tray Remove paper from Finisher Output	3-28
IN1~IN4, IN6, IN7	Jam Inside Finisher Open Door F and Door I to Clear	3-29
IN5, IN8	Jam at Finisher Entrance Separate Finisher Base from Printer	3-30
FT	Finisher Output Tray Jammed Remove Obstruction to Clear	3-31
Door and Cover Errors		
_	Close Right Door C for Tray [3][4][5][6]	3-33

Error	Control Panel Message	Page
—	Close Door D	3-34
—	Close Finisher Door F	3-35
—	Close Finisher Door H	3-36
—	Close Finisher Door J	3-37
<b>Tray and Media Errors</b>		
—	Clear Tray [3][4][5][6] Riser Plate	3-38
—	Out of Paper Load Tray [3][4][5][6] with [size] [type]	3-39
—	Finisher Lower Output Tray is Full, Unload Paper	3-41
—	Finisher Upper Output Tray is Full, Unload Paper	3-41
—	Remove Paper from Tray [2][3][4][5][6]	3-41
<b>Media Mismatch Errors</b>		
—	Wrong Paper Size Load Tray [3][4][5][6] with [size] [type]	3-42
—	Paper Not Available Load Tray [3][4][5][6] with [size] [type]	3-44

Error	Control Panel Message	Page
<b>Fatal Errors</b>		
U12	Duplex Interface Failure	3-45
U14	Tray 3 Interface Failure	3-46
U13	Tray 4 Interface Failure	3-46
U16	Tray 5 Interface Failure	3-46
U17	Tray 6 Interface Failure	3-46
U51	Inverter Unit Interface Failure	3-47
U34	Unsupported Duplex Unit ROM	3-48
U35	Unsupported Tray 3 ROM	3-49
U36	Unsupported Tray 4 ROM	3-49
U37	Unsupported Tray 5 ROM	3-49
U38	Unsupported Tray 6 ROM	3-49
U50	Unsupported Inverter Unit ROM	3-50
U55	Unsupported Finisher Unit ROM	3-51
F131	Finisher Folder Sensor Failure	3-52
F103	Finisher Paddle Failure	3-53
F106	Finisher Stapler Swing Motor Failure	3-54
F111	Finisher Stapler Stack Handling Motor Failure	3-55
F110	Finisher Staple Motor Failure	3-54
F93	Finisher Jog Motor Failure	3-56
F115	Finisher Tray Lift Motor Failure	3-58
F116	Finisher Exit Failure	3-60
F138	Finisher Punch Backup RAM Failure	3-61
F132	Finisher Punch Communications Failure	3-62
F181	Finisher Punch Transfer Motor Failure	3-63
F134	Finisher Punch Motor Failure	3-64
F137	Finisher Backup RAM Failure	3-65
F139	Finisher Punch Dust Sensor Failure	3-66
<b>Printer error - Contact service; report fault [nnn]</b> Where [nnn] is one of the codes described below.		
F141	Finisher Punch Unit counter at end of life. The Punch count exceeds life limit.	3-68
F142	Finisher Staple Unit counter at end of life. The Staple count exceeds life limit.	3-69
F186	Finisher interface error. Communications lost with Finisher.	3-70

Error	Control Panel Message	Page
I97	Inverter Power Supply Error.	3-71
221	Tray 3 Firmware Error. Firmware error in Tray 3 Flash Memory.	3-72
222	Tray 4 Firmware Error. Firmware error in Tray 4 Flash Memory.	3-72
223	Tray 5 Firmware Error. Firmware error in Tray 5 Flash Memory.	3-72
224	Tray 6 Firmware Error. Firmware error in Tray 6 Flash Memory.	3-72
225	Duplex Unit Firmware Error. Firmware error in Duplex Unit Flash Memory.	3-73
227	Finisher Inverter Firmware Error. Firmware error in Inverter Flash Memory.	3-74
242	Tray 3 Flash Memory Failure. Hardware error in the Tray 3 Flash Memory device.	3-75
243	Tray 4 Flash Memory Failure. Hardware error in the Tray 4 Flash Memory device.	3-75
244	Tray 5 Flash Memory Failure. Hardware error in the Tray 5 Flash Memory device.	3-75
245	Tray 6 Flash Memory Failure. Hardware error in the Tray 6 Flash Memory device.	3-75
246	Duplex Unit Flash Memory Failure. Hardware error in the Flash Memory device.	3-76
248	Finisher Inverter Flash Memory Error. Inverter Flash Memory device error.	3-77
911	The Tray 3 Lift Motor has failed.	3-78
912	The Tray 4 Lift Motor has failed.	3-78
913	The Tray 5 Lift Motor has failed.	3-78
914	The Tray 6 Lift Motor has failed.	3-78
918	The Duplex Unit Fan has failed.	3-80
919	+24 V not available to the Duplex Unit.	3-81
<b>Printer error - Contact service; report fault [nnn]" (Continued)</b> Where [nnn] is one of the codes described below.		
924	+24 V not available to Tray 3.	3-83
925	+24 V not available to Tray 4.	3-83+
926	+24 V not available to Tray 5.	3-83
927	+24 V not available to Tray 6.	3-83
931	The Duplex Unit CPU clock frequency is inaccurate.	3-84
932	The Inverter CPU clock frequency is inaccurate.	3-85
933	The Tray 3 Feeder Board clock frequency is inaccurate.	3-86
934	The Tray 4 Feeder Board clock frequency is inaccurate.	3-86
935	The Tray 5 Feeder Board clock frequency is inaccurate.	3-86
936	The Tray 6 Feeder Board clock frequency is inaccurate.	3-86
<b>Warning Messages</b>		
–	No Paper in Tray [3][4][5][6]	3-87

Error	Control Panel Message	Page
—	Staple Cartridge Is Empty	3-88
—	Punch Waste Box is Full or Missing	3-89
—	Finisher Away From Base	3-90
—	Finisher Away From Printer	3-91



# Using the Troubleshooting Procedures

1. **Applicable Status Code(s)** lists the error message(s) addressed by each troubleshooting procedure.
2. **Applicable Parts** and **Wiring and Plug/Jack References** assist you in locating information available for a particular part or procedure.
3. Follow each **Step** in a troubleshooting procedure sequentially in the order given until the problem is fixed or resolved.
4. The **Actions and Questions** box instructs you to perform a certain action or procedure. Also included are precautions and/or additional procedures you must follow to isolate the problem.
5. When a procedure instructs you to test a component using Service Diagnostics, see "Fault Isolation" on page 4-6 for the detailed steps and functions for testing parts, assemblies, or subsystems of the printer.
6. Some actions are followed by a question. If your response to the question is **Yes**, then follow the instructions for a **Yes** reply. If your response to the question is **No**, then follow the instructions for a **No** reply.
7. Note that two types of photo sensors are used: photo-reflective and photo-receptive. Photo-reflective sensors use light reflected back from an object to detect its presence or absence. Photo-receptive sensors use an actuator or the object itself to block the light path to detect an object or condition.
8. Troubleshooting procedures frequently ask you to take voltage readings or test for continuity or resistance at certain test points. The **Wiring and Plug/Jack References** table provides pointers to the diagrams that provide this information.
9. Troubleshooting procedures often ask you to replace a printer component. When instructed to replace a non-spared component and that component is part of a parent assembly, replace the entire parent assembly.

# Measurement Techniques

1. Unless indicated otherwise, the instruction “switch On printer power” means for you to switch On printer power and let the printer proceed through Power On Self Test (POST) to a ‘Ready’ condition.
2. Conventions used in this manual to represent connectors

**Jack**



**Plug**



s7400-314

3. When instructed to take voltage, continuity or resistance readings on wiring harness, proceed as follows; Check P/J 232–1 to P/J 210–5 by placing the red probe (+) of your meter on pin 1 of P/J 232, and place the black probe (–) of your meter on pin 5 of P/J 210.
4. When you are instructed to take resistance readings between “P/J 232 <=> P/J 210” (without specified pin numbers), check all pins. When you are instructed to run a test, run the Service Diagnostics test associated with the component being examined.
5. When you are instructed to take a voltage reading, the black probe (–) is generally connected to a pin that is either RTN (Return) or SG (Signal Ground). You can substitute any RTN pin or test point in the printer, and you can use FG (frame ground) in place of any SG pin or test point.
6. Before measuring voltages make sure the printer is switched On, the Imaging Unit and the paper trays are in place, and the interlock switch is actuated, unless a troubleshooting procedure instructs otherwise.
7. All voltage values given in the troubleshooting procedures are approximate values. The main purpose of voltage readings is to determine whether or not a component is receiving the correct voltage value from the power supply and if gating (a voltage drop) occurs during component actuation. Gating signals may be nothing more than a pulse, resulting in a momentary drop in voltage that may be difficult or impossible to read on the average multi-meter.
8. When a troubleshooting procedure instructs you to replace a non-spared component and that component is part of a parent assembly, you should replace the entire parent assembly.
9. Ensure that you are using a supported media size and type.
10. Power and signal grounds are connected to the frame ground. All circuit troubleshooting can be performed using the metal frame (chassis) as the grounding point.

# Troubleshooting the Finisher

## Jam at Door C for Tray [3][4][5][6]

Media reached the Feed-Out Sensor, but did not arrive at the Transfer Unit Entrance Sensor on time. This error represents a misfeed jam for media fed from an optional tray.

### Applicable Status Codes:

**Code C3:** Jam at Door C for Tray 3

**Code C4:** Jam at Door C for Tray 4

**Code C5:** Jam at Door C for Tray 5

**Code C6:** Jam at Door C for Tray 6

### Initial Actions:

- Try picking paper from a different tray.
- Ensure the tray is installed properly and the paper guides are set correctly.
- Remove any obstructions or debris in the paper path.
- Cycle printer power.
- If the problem persists, follow the procedure below.

### Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Feed Rollers</li><li>■ Feeder Assembly</li><li>■ Option Control Board</li><li>■ Feeder Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (page 10-6)</li><li>■ Print Engine Map 5 (page 10-8)</li><li>■ Print Engine Map 11 (page 10-14)</li><li>■ Print Engine Motor Driver Board (6/6) (page 10-36)</li><li>■ Options Map 5, Paper Tray Controller Board</li><li>■ Options Paper Tray Sensors and Interconnect Wiring</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	<p>Check the following for evidence of fault, dirt, debris, or damage:</p> <ul style="list-style-type: none"> <li>■ Door C</li> <li>■ Feed Rollers</li> <li>■ Registration Rollers</li> <li>■ Transport Rollers</li> <li>■ Sensor Actuators</li> </ul> <p>Is there any damage or debris?</p>	Clean or replace the appropriate parts.	Go to Step 2.
2	<p>Check the Option connection. Is the Option connection to the Printer damaged or disconnected?</p>	Reconnect or replace the cable.	Go to Step 3.
3	<p>Check the Option Harness continuity. Disconnect OPTIF from the Engine Control Board and the Option connector. Is the harness conductive?</p>	Go to Step 4.	Replace the Option harness.
4	<p>Test the tray sensors. Run the Service Diagnostics Tray Switches test for the appropriate tray. Do the sensors function correctly?</p>	Go to Step 6.	Go to Step 5.
5	<p>Check the sensor harness continuity. Is the harness conductive?</p>	Replace the sensor. If the error persists, replace the Feeder Board.	Replace the harness.
6	<p>Test the Feeder Motors. Run the Service Diagnostics Motor tests. Do the motors function correctly?</p>	Go to step 8.	Go to Step 7.
7	<p>Check the motor harness continuity. Is the harness conductive?</p>	Replace the motor. If the error persists, Go to Step 10.	Replace the harness.
8	<p>Test the Registration Clutch. Run the Service Diagnostics Clutch test. Does the clutch function correctly?</p>	Go to step 11.	Go to step 9.
9	<p>Check the CL1 harness continuity. Is the harness conductive?</p>	Replace the clutch. If the error persists, go to Step 10.	Replace the harness.
10	<p>Check for +24 V at the Motor Driver Board's OPTRY24 connector. 1. Close the Interlock Switches. 2. Disconnect OPTRY24. Is there +24 V at OPTRY24-1 and -2 &lt;=&gt; ground?</p>	Replace the affected Option Control Board.	Go to Step 11.

## Troubleshooting Procedure Table (Continued)

Step	Actions and Questions	Yes	No
11	Check OPROY24 Harness continuity. Disconnect the OPROY24 Harness. Is the OPROY24 Harness conductive?	Go to Step 13.	Replace the OPROY24 Harness.
12	Check the Registration Assembly. Is there a gap between the rollers?	Replace the Registration Assembly (page 8-84).	Go to Step 13.
13	Check the DRV1 harness continuity. Is the harness conductive?	Replace the Motor Driver Board (page 8-141). If the error persists, replace the Engine Control Board (page 8-112)	Replace the harness.

# Jam at Door D Open Door D to Clear

Media reached Duplex Reverse Sensor, but did not leave the Duplex Unit on time. This error represents a misfeed jam inside the Duplex Unit.

## Applicable Status Code:

**Code D1:** Jam at Door D

## Initial Actions:

- Ensure that the Duplex Unit is free of obstructions and fully seated.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Duplex Unit	■ Options Map 4, Duplex Unit Controller Board ■ Options Duplex Unit Sensors and Interconnect Wiring

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Duplex Unit Entrance Roller</li><li>■ Duplex Unit Connector</li><li>■ Duplex Unit</li></ul> Is there any damage or debris?	Replace any damaged parts.	Go to Step 2.
2	Test the Duplex Entrance, Reverse, Front, and Rear actuators and sensors using Service Diagnostics. Do the sensors and actuators function correctly?	Go to Step 3.	Replace the Duplex Unit (page 5-122).
3	Test the Duplex Motors using Service Diagnostics. Do the motors function correctly?	Go to Step 4.	Replace the Duplex Unit (page 5-122).
4	Inspect the DUPLEX harness. If defective, replace the wiring harness. Is the harness properly seated and free from defects?	Replace the Motor Driver Board (see Book 1).	Replace the Duplex Unit (page 5-122).

# Jam in Duplex Unit

Media reached Duplex Reverse Sensor, but did not leave the Duplex Unit on time.  
This error represents a misfeed jam inside the Duplex Unit.

## Applicable Status Code:

**Code D2:** Jam in Duplex Unit

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Duplex Unit	■ Options Map 4, Duplex Unit Controller Board ■ Options Duplex Unit Sensors and Interconnect Wiring

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Ensure the correct weight and type of paper is loaded in the tray. Does the media meet specifications?	Go to Step 2.	Run several test prints. If a jam persists, go to Step 2.
2	Check for and remove any dirt, debris or obstructions in the paper path around the Duplex Unit. Did this correct the problem?	Complete	Go to Step 3.
3	Clean and check the Duplex Unit rollers. Do the rollers move freely and are free of dirt or debris?	Go to Step 4.	Replace the Duplex Unit (page 5-122).
4	Test the Duplex Entrance, Reverse, Front, and Rear actuators and sensors using Service Diagnostics. Do the sensors function correctly?	Go to Step 5.	Replace the Duplex Unit (page 5-122).
5	Test the Duplex Motors. Do the motors function correctly?	Go to Step 6.	Replace the Duplex Unit (page 5-122).
6	Inspect the DUPLEX harness. If defective, replace the wiring harness. Is the harness properly seated and free from defects?	Replace the Motor Driver Board (see Book 1).	Replace the Duplex Unit (page 5-122).

# Jam at Duplex Entrance

Media reached the Fuser Exit Sensor, but did not reach the Duplex Entrance Sensor on time. This error represents a jam at the Duplex entrance or in the Exit Assembly.

## Applicable Status Code:

**Code TC3:** Jam at Duplex Entrance

## Initial Actions:

- Check for obstructions or debris in the output paper path.
- Reseat the Duplex Unit.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Duplex Unit</li><li>■ Duplex Entrance Sensor</li><li>■ Exit Assembly (see Book 1)</li><li>■ Fuser Motor, (see Book 1)</li><li>■ Motor Driver (see Book 1)</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Options Map 4, Duplex Unit Controller Board.</li><li>■ Options Duplex Unit Sensors and Interconnect Wiring</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Duplex Unit</li><li>■ Exit Gate</li><li>■ Exit Assembly</li><li>■ Duplex Gate</li></ul> Are there any defects?	Replace any damaged parts.	Go to Step 2.
2	Test the Duplex Entrance Sensor. Run the Service Diagnostics Duplex Entrance (IN1) Sensor test. Does the sensor function correctly?	Go to Step 4.	Replace the Duplex Entrance Sensor, if the error persists, go to Step 3.
3	Check DUPLEX Harness continuity. Is the DUPLEX Harness conductive?	Go to Step 4.	Replace the DUPLEX Harness.
4	Print a test print in Duplex mode Does the sheet reverse in the printer?	Go to Step 6.	Replace the Duplex Unit. If the error persists, go to Step 5.



## Troubleshooting Procedure Table (Continued)

Step	Actions and Questions	Yes	No
5	Check for +24 V to the Duplex Motors. Disconnect DUPLEX on the Motor Driver Board. Is there +24 V at DUPLEX-6 <=> ground?	Go to Step 6.	Go to Step 10.
6	Test the Fuser Motor. Run the Service Diagnostics Fuser Motor test. Does the Fuser Motor function correctly?	Go to Step 8.	Go to Step 7.
7	Check for +24 V to the Fuser Motor. Disconnect DCHEAT on the Motor Driver Board. Is there +24 V at DCHEAT-3 <=> ground?	Replace the Fuser Motor (see Book 1).	Go to Step 10.
8	Test the Exit Gate Solenoid. Run the Service Diagnostics Exit Gate Solenoid test. Does the solenoid function correctly.	Replace the Exit Assembly (see Book 1).	Go to Step 9.
9	Check for +24 V to the solenoid. 1. Actuate the interlock switches. 2. Disconnect SOLENOID from the Rear Sensor Board. Is there +24 V across SOLENOID-1 <=> ground?	Replace the solenoid (page 5-129).	Replace the Rear Sensor Board (See Book 1).
10	Check Motor Driver Board POW24 connector for 24 V. 1. Disconnect POW24. Is there +24 V across POW24-1 <=> POW24-2?	Replace the Motor Driver Board (see Book 1).	Go to Step 11.
11	Check for 24 V at the LVPS 1. Disconnect CN2 on the LVPS. Is there +24 V across pins 1 and 2?	Replace the POW24 Harness.	Replace the LVPS (See Book 1).
12	Check the DRV0 and DRV1 ribbon cables that connect the Motor Driver Board to the Engine Control Board. Are these cables connected and undamaged?	Replace the Engine Control Board (See Book 1).	Replace the DRV0 and DRV1 Harnesses.

# Jam at Finisher Punch Unit

Media did not clear the Finisher Entrance Sensor on time. This error represents a jam at the Finisher entrance.

## Applicable Status Code:

**Code FN1:** Jam at Finisher Punch

## Initial Actions:

- Check for obstructions or debris in the paper path.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Punch Unit</li><li>■ Finisher Entrance Sensor</li><li>■ Finisher Transport Rollers</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 2, Punch Unit Controller Board</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Punch Unit Sensors and Motors</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Punch Unit</li><li>■ Transport Rollers</li><li>■ Exit Rollers</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Finisher Entrance Sensor. Run the Service Diagnostics Finisher Entrance Sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Entrance Sensor signal at the Finisher Control Board. Actuate the Entrance Sensor. Does the voltage across CN16-12 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Jam at Finisher Door H

Media reached the Finisher Entrance Sensor, but did not clear the Inverter on time. This error represents a jam in the Finisher Inverter.

## Applicable Status Code:

**Code FN2:** Jam at Finisher Door H

## Initial Actions:

- Check for obstructions or debris in the paper path.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Inverter</li><li>■ Finisher Entrance Sensor</li><li>■ Finisher Inverter Rollers</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Map 9, Inverter Sensor Locator</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Inverter</li><li>■ Inverter Rollers</li><li>■ Finisher Transport Rollers</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Finisher Entrance Sensor. Run the Service Diagnostics Finisher Entrance Sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Entrance Sensor signal at the Finisher Control Board. Actuate the Entrance Sensor. Does the voltage across CN16-12 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board ( page 5-46).	Replace the harness.

# Jam at Finisher Upper Output Tray

Media remains in the upper output path. This error represents a jam in the Finisher.

## Applicable Status Code:

**Code FN4:** Jam at Finisher Upper Output Tray

## Initial Actions:

- Check for obstructions or debris in the paper path.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Processing Tray Sensor. Run the Service Diagnostics sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Processing Tray Sensor signal. Actuate the sensor at the Finisher Control Board. Does the voltage across CN5-9 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Jam at Finisher Saddle Stapler

Media remains in the buffer area. This error represents a jam in the Finisher.

## Applicable Status Code:

**Code FN5:** Jam at Finisher Saddle Stapler

## Initial Actions:

- Check for obstructions or debris in the paper path.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Folding Position Sensor. Run the Service Diagnostics Folding Position Sensor test. Do the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Folding Position Sensor signal at the Finisher Control Board. Actuate the sensor. Does the voltage across CN16-2 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Jam at Finisher Upper Output Tray

Media remains in the Finisher offset rollers. This error represents a jam in the Finisher upper output path.

## Applicable Status Code:

**Code FN6:** Jam at Finisher Upper Output Tray

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Processing Tray Sensor. Run the Service Diagnostics sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Processing Tray Sensor signal at the Finisher Control Board. Actuate the sensor. Does the voltage across CN5-3 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board(page 5-46).	Replace the harness.

# Jam at Finisher Stapler

Media remains in the Compiler Tray. This error represents a jam in the Finisher staple path.

## Applicable Status Code:

**Code FN7:** Jam at Finisher Stapler

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Bind Tray Sensor. Run the Service Diagnostics sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Processing Tray Sensor signal at the Finisher Control Board. Actuate the sensor. Does the voltage across CN15-3 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Jam at Finisher Door G

Jam detected in the saddle stitch path.

## Applicable Status Code:

**Code FN8:** Jam at Finisher Door G

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Bind Tray Sensor. Run the Service Diagnostics sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Processing Tray Sensor signal at the Finisher Control Board. Actuate the sensor. Does the voltage across CN15-3 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.



# Jam at Finisher Saddle Stapler

This error represents a jam in the Finisher staple path.

## Applicable Status Code:

**Code FN9:** Jam at Finisher Saddle Stapler

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li><li>■ Stapler</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Folding Position Sensor. Run the Service Diagnostics sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Processing Tray Sensor signal at the Finisher Control Board. Actuate the sensor. Does the voltage across CN16-2 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Jam at Finisher Upper Output Tray

Media remains in the Compiler Tray. This error represents a jam in the Finisher eject path.

## Applicable Status Code:

**Code FN10:** Jam at Finisher Upper Output Tray

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Compiler Tray</li><li>■ Front and Rear Alignment Guides</li><li>■ Transport Rollers</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Tray Paper Sensor. Run the Service Diagnostics sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check the Processing Tray Sensor signal at the Finisher Control Board. Actuate the sensor. Does the voltage across CN5-9 <=> ground change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Jam Inside Finisher

Media remains in the Inverter. These errors represent a jam in the Inverter path.

## Applicable Status Codes:

**Code: IN1:** Media remains in the Inverter Lower Sensor.

**Code: IN2:** Media remains in the Inverter Exit Sensor.

**Code: IN3:** Media reached the Inverter Entrance Sensor, but did not reach the Inverter Exit Sensor on time.

**Code: IN4:** Media reached the Inverter Entrance Sensor, but did not clear on time.

**Code: IN6:** Media reached the Inverter Exit Sensor, but did not clear on time.

**Code: IN7:** Media remains in the Inverter Lower Sensor.

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Inverter Lower Sensor</li><li>■ Inverter Entrance Sensor</li><li>■ Inverter Exit Sensor</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 3, Inverter Controller Board</li><li>■ Options Map 9, Inverter Sensor Locator</li><li>■ Options Inverter Sensors Diagram</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, damage, obstruction, or debris: <ul style="list-style-type: none"><li>■ Sensor Actuator</li><li>■ Paper Guides</li><li>■ Transport Rollers</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the affected sensor. Run the Service Diagnostics test for the reporting sensor. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Test the sensor signal. Does the signal voltage change on the SNSCNO connector of the Inverter Control Board?	Replace the Inverter Control Board (page 5-46).	Either the sensor or the wiring is defective. Check the resistance of the wires and if no problem is found replace the sensor.

# Jam at Finisher Entrance

Media remains in the Inverter Entrance Sensor. This error represents a jam in the Printer/Finisher interface.

## Applicable Status Codes:

**Code IN5:** Media did not reach the Inverter Entrance Sensor following an Eject command from the printer.

**Code IN8:** Media remains in the Inverter Entrance Sensor.

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Inverter Entrance Sensor	■ Options Map 3, Inverter Controller Board ■ Options Map 9, Inverter Sensor Locator ■ Options Inverter Sensors Diagram

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, damage, obstruction, or debris: <ul style="list-style-type: none"><li>■ Sensor Actuator</li><li>■ Paper Guides</li><li>■ Transport Rollers</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Inverter Entrance Sensor. Run the Service Diagnostics Inverter Input Sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Test the sensor signal. Does the voltage change on SNSCNO-5 connector of the Inverter Control Board when the sensor is actuated?	Replace the Inverter Control Board (page 5-55).	Either the sensor or the wiring is defective. Check the resistance of the wires and if no problem is found replace the sensor.

# Finisher Output Tray Jammed

This error represents a failure of, or an obstruction in the Finisher Upper Output Tray's up or down motion.

## Applicable Status Code:

**Code FT:** Finisher Output Tray Jammed

## Initial Actions:

- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Lift Motor</li><li>■ Lift Motor Clock Sensor</li><li>■ Upper or Lower Limit Sensors</li><li>■ Lift Belts</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Map 8, Finisher Sensor Locator (2/2)</li><li>■ Options Finisher Controller to Sensors (2/3)</li><li>■ Options Finisher Controller to Switches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, damage, obstruction, or debris: <ul style="list-style-type: none"><li>■ Upper Output Tray</li><li>■ Lift belts and actuators</li><li>■ Limit Sensors</li><li>■ Shift Motor</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Limit Sensors. Run the Service Diagnostics Tray Upper and Lower Limit Sensor tests. Do the sensors function correctly?	Go to Step 4.	Replace the affected sensor. If the error persists, go to Step 3.
3	Test the sensor signals. Does the voltage change on CN15-12 (Upper) and CN-15-9 (Lower) connector of the Finisher Control Board when the sensors are actuated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.
4	Test the Shift Motor. Run the Service Diagnostics Shift Motor test. Does the motor function correctly?	Go to Step 4.	Replace the motor.

## Troubleshooting Procedure Table (Continued)

Step	Actions and Questions	Yes	No
5	Check for +24 V to the Shift Motor. Disconnect CN6 from the Finisher Control Board. Is there +24 V CN6-1 <=> CN6-2?	Replace the Shift Motor (page 5-59).	Replace the Finisher Control Board. If the error persists, go to Step 6.
6	Test the Shift Motor Clock Sensor. Run the Shift Motor Clock Sensor test. Does the sensor function correctly?	Go to Step 8.	Replace the sensor.
7	Test the sensor signal. Does the voltage change on CN15-5 when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the wiring. If the error persists, replace the Engine Control Board (page 8-112).

# Close Right Door C for Tray [3][4][5][6]

The Door C Detect Sensor for one of the option trays indicates that Door C is open.

## Initial Actions:

- Ensure that the door is free of obstructions and fully closed.
- Verify that the Detect Sensor Actuator molded into the Door is not damaged.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Door C</li><li>■ Door C Detect Sensor</li><li>■ Option Feeder Board</li><li>■ Motor Driver Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (page 10-6)</li><li>■ Options Map 5, Paper Tray Controller Board</li><li>■ Options Paper Tray Sensors and Interconnect Wiring</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Door C Detect Sensor Actuator</li><li>■ Door C Detect Sensor Holder</li><li>■ Door C Detect Sensor</li></ul> Is there any damage or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Door C Detect Sensor. Run the Service Diagnostics Door C test for the appropriate tray.  <b>NOTE:</b> Door sensor tests are located under the Interlock Switches sub-menu. Does the switch function correctly?	Replace the Engine Control Board (page 8-112).	Go to Step 3.
3	Replace the Door C Detect Sensor. Does the error persist?	Go to Step 4.	Complete.
4	Check for +0V on the OPTIF connection. Is there +0 V at OPTIF-7 when the door is closed?	Replace the Engine Control Board (see Book 1).	The Door C sensor is signaling an open condition, go to Step 5.
5	Check for +0V on the FFSNS connector of the Option Control Board. Is there +0 V at FFSNS-8 when the door is closed?	Replace the Option Control Board.	If the wiring from the Option Control Board to the sensor is OK, replace the sensor.

# Close Left Door D

The Door D Detect Sensor on the Duplex Unit indicates that Door D is open.

## Initial Actions:

- Ensure that the door is free of obstructions and fully closed.
- Verify that the Detect Sensor Actuator is not broken.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Door D Detect Sensor	■ Print Engine Map 3 (see Book 1) ■ Options Map 4, Duplex Unit Controller Board ■ Options Duplex Unit Sensors and Interconnect Wiring

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Door D Detect Sensor Actuator</li><li>■ Door D Detect Sensor</li><li>■ Door D</li></ul> Is there any damage or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Door D Detect Sensor. Run the Service Diagnostics Door D test for the appropriate tray. <b>NOTE:</b> Door sensor tests are located under the Interlock Switches sub-menu. Does the switch function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Replace the Door D Detect Sensor. Does the error persist?	Replace the DUPLEX Harness, if the error persists, replace the Duplex Unit.	Complete.



# Close Finisher Door F

The Door F Interlock Switch indicates that Door F is open.

## Initial Actions:

- Ensure that the door is free of obstructions and fully closed.
- Verify that the actuator is not broken.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Door F Interlock Switch and actuator	■ Options Map 9 Inverter Sensor Locations ■ Options Inverter Sensors Diagram

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Door F Interlock Switch</li><li>■ Switch actuator</li></ul>	Replace the parts concerned.	Go to Step 2.
2	Test the Door F Interlock Switch. <b>NOTE:</b> Door sensor tests are located under the Interlock Switches sub-menu. Run the Service Diagnostics Front Door Switch test. Does the switch function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Check the switch connection. Is CN68 connected?	Go to Step 4.	Connect the switch.
4	Check all pins on the harness for continuity. Disconnect the Switch harness from CN8. Is the harness conductive?	Go to Step 5.	Replace the harness.
5	Replace the Door F Interlock Switch. Does the error persist?	Replace the Finisher Control Board (page 5-46).	Complete

# Close Finisher Door H

The Upper Cover (Door H) Sensor indicates that Door H is open.

## Initial Actions:

- Ensure that the door is free of obstructions and fully closed.
- Verify that the actuator is not broken.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Upper Cover Sensor	■ Options Map 7, Finisher Sensor Locator (1/2) ■ Options Finisher Controller to Sensors (1/3)

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Door H Actuator</li><li>■ Door H Switch</li></ul>	Replace the parts concerned.	Go to Step 2.
2	Test the Door H Switch. Run the Service Diagnostics Upper Cover test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Check the sensor connection. Is CN4 on the Finisher Control Board connected?	Go to Step 4.	Reconnect the sensor.
4	Check the Door H signal. Does the voltage change on CN4-6 of the Finisher Control Board when the switch is activated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Close Finisher Door J

The Front Cover (Door J) Sensor indicates that Door J is open.

## Initial Actions:

- Ensure that the door is free of obstructions and fully closed.
- Verify that the actuator is not broken.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Door J Actuator</li><li>■ Door J Switch</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7, Finisher Sensor Locator (1/2)</li><li>■ Options Finisher Controller to Sensors (1/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Door J Actuator</li><li>■ Door J Switch</li></ul>	Replace the parts concerned.	Go to Step 2.
2	Test the Door J Switch. Run the Service Diagnostics Front Cover test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Check the sensor connection. Is CN4 on the Finisher Control Board connected?	Go to Step 4.	Reconnect the sensor.
4	Check the Door J signal. Does the voltage change on CN4-9 of the Finisher Control Board when the switch is activated?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Clear Tray [2][3][4][5][6] Riser Plate

The Lift Motor failed to raise the media to the pre-feed position. For a Remove Paper error, the Level Sensor indicates Pre-Feed position or higher before a lift is executed

## Initial Actions:

- Remove the tray and inspect the tray cavity to ensure that it is free of obstructions or debris.
- Reinstall the tray and cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Level Sensor</li><li>■ Lift Motor</li><li>■ Universal Tray</li><li>■ Option Control Board</li><li>■ Option Feeder Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Map 12 (see Book 1)</li><li>■ Print Engine Feeder Board (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li><li>■ Options Map 6 Paper Tray Feeder Board</li><li>■ Options Paper Tray Motors and Clutches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Level Sensor Actuator</li><li>■ Lift Plate and gearing</li><li>■ Lift Motor</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Test the Level Sensor. Run the Service Diagnostics Level Sensor test for the appropriate tray. Does the sensor function correctly?	Go to Step 3.	Replace the Sensor. If the error persists, go to Step 4.
3	Test the Lift Motor. Run the Service Diagnostics Lift Motor test for the appropriate tray. Does the motor function correctly?	Go to Step 4.	Replace the Lift Motor. If the error persists, go to Step 4.
4	Check for +24 V to the Lift Motor. Is there +24 V across GDCC-1 <=> ground?	Go to Step 5.	Replace the Option Control Board.
5	Test the OPTIF Harness continuity. Is the OPTIF Harness conductive?	Replace the Engine Control Board (see Book 1).	Replace the harness.

# Out of Paper Load Tray [2][3][4][5][6] with [size][type]

The tray’s No Paper Sensor indicates the tray is empty.

## Initial Actions:

- Inspect the tray to ensure that it is free of obstructions, is loaded with supported media, and the guides are adjusted correctly.
- Cycle printer power.
- If the problem persists, follow the procedure below

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ No Paper Sensor</li><li>■ No Paper Actuator</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 12 (see Book 1)</li><li>■ Print Engine Feeder Board (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li><li>■ Options Map 6 Paper Tray Feeder Board</li><li>■ Options Paper Tray Motors and Clutches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ No Paper Sensor</li><li>■ No Paper Actuator</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Test the No Paper Sensor for the affected tray. Run the Service Diagnostics Tray Switches test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Replace the sensor. If the error persists, go to Step 3.
3	Check for +5 V to the No Paper Sensor. Is there +5 V across PAPEND-1 <=> ground?	Go to Step 4.	Replace the Feeder Board.
4	Check all pins on the Main Harnesses for continuity. Is the harness conductive?	Replace the Option Control Board.	Replace the Main Harness.
5	Test the OPTIF Harness continuity. Is the OPTIF Harness conductive?	Replace the Engine Control Board (see Book 1).	Replace the harness.

# Finisher Lower Output Tray is Full, Unload Paper

## Initial Actions:

- Ensure that the output tray is empty and the actuator is in the correct position.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Saddle Stitch Bind Tray</li><li>■ Bind Tray Sensor Flag</li><li>■ Stapler</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7 Finisher Sensor Locator (1/2)</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, damage, obstruction, or debris: <ul style="list-style-type: none"><li>■ Saddle Stitch Bind tray</li><li>■ Bind Tray Sensor Flag</li><li>■ Stapler</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Binding Sensor. Run the Service Diagnostics Bookbinding Sensor tests. Does the Binding Sensor function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Test the sensor signal. Does the voltage change on CN15-3 connector of the Finisher Control Board when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Either the sensor or the wiring is defective. Check the resistance of the wires and if no problem is found replace the sensor.

# Finisher Upper Output Tray is Full, Unload Paper

## Initial Actions:

- Ensure that the output tray is empty and the actuator is in the correct position.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Stack Full Sensor	■ Options Map 7 Finisher Sensor Locator (1/2) ■ Options Finisher Controller to Sensors (3/3)

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Upper Tray Stack Full Sensor. Run the Service Diagnostics Upper Tray Full Sensor test. Does the sensor state change when the sensor is actuated?	Replace the Finisher Control Board.	Go to Step 2.
2	Check the sensor harness connections. Is the sensor connected?	Go to Step 4.	Connect and go to Step 3.
3	Print a test print. Does the error still occur?	Go to Step 4.	Problem solved.
4	Check sensor harness continuity. Is the harness conductive?	Go to Step 5.	Replace the Sensor Harness.
5	Check for +5 V to the Upper Tray Stack Full Sensor. Is there +5 V on the Finisher Control Board?	Go to Step 6.	Replace the Finisher Control Board.
6	Check the Finisher Control Board signal. Does the voltage across on the Finisher Control Board change when the sensor is actuated?	Replace the Finisher Control Board (page 5-46).	Replace the Upper Tray Full Stack Sensor.

# Wrong Paper Size; Load Tray [3][4][5][6] with [size][type]

Tray [3] [4] [5] [6] paper size mismatch error. The Paper Size Switch indicates that the media loaded in the source tray does not match the size specified by the print job.

## Initial Actions:

- Inspect the tray to ensure that it is free of obstructions, is loaded with the expected media, and the guides are adjusted correctly.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Paper Size Switch</li><li>■ Paper Tray</li><li>■ SIZE Harness</li></ul>	<ul style="list-style-type: none"><li>■ Paper Size Switch Signal Definitions table (see Book 1)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the paper in the affected tray. Is paper loaded in the tray properly?	Go to Step 2.	Reload the paper.
2	Check the tray paper guides. Are the paper guides set correctly?	Go to Step 3.	Reset the guides.
3	Check the Paper Size Switch for the affected tray. Is the switch installed correctly?	Go to Step 4.	Correct the installation.
4	Test the Paper Size Switch for the affected tray. Run the Service Diagnostics Size Sensor test for the affected tray. Does the sensor state change each time the loaded tray is moved in or out?	Go to Step 7.	Go to Step 5.
5	Check the Paper Size Switch connection. Is the switch connected at either end?	Go to Step 6.	Connect the switch.
6	Check continuity between the affected Paper Size Switch and the Option Control Board. Is the harness conductive?	Go to Step 7.	Repair the wiring.
7	Check for +5 V to the Paper Size Switch. Is there +5 V across each switch <=> ground when the switch is actuated?	Replace the Paper Size Switch for the affected tray (page 7-30).	Replace the Option Control Board.



# Wrong Paper Type Load Tray [3][4][5][6] with [size][type]

The Media Thickness Sensor has detected a change in the media type (thickness) in the same tray, or reports a thickness value exceeding the reference.

## Initial Actions:

- Ensure the tray is free of obstructions and loaded with the expected media.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Media Thickness Sensor	■ Print Engine Map 9 (see Book 1)
■ Front Sensor Board	■ Print Engine Front Sensor Board (1/2) (see Book 1)

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, debris, damage, of misalignment: <ul style="list-style-type: none"><li>■ Media Thickness Sensor</li><li>■ PATHICK Harness</li></ul>	Replace the parts concerned.	Go to Step 2.
2	Recalibrate the sensor. See (page 6-4). Did the calibration pass?	Complete.	Go to Step 3.
3	Check the PATHICK Harness continuity. Is the harness conductive?	Go to Step 4.	Replace the harness.
4	Check for +5 V to the sensor. Disconnect PATHICK at the Front Sensor Board. Is there +5 V across PATHICK-3 <=> ground?	Replace the sensor. Recalibrate the sensor following replacement.	Go to Step 5.
5	Check for +5 V to the Front Sensor Board. Disconnect FSNS at the Motor Driver Board. Is there +5 V across FSNS-10 and -14<=> ground?	Replace the Front Sensor Board (see Book 1).	Go to Step 6.
6	Check the FSNS Harness continuity. Is the harness conductive?	Replace the Motor Driver Board (see Book 1).	Replace the FSNS Harness.

# Paper Not Available Load Tray [3][4][5][6] with [size][type]

Tray [3] [4] [5] [6] paper type mismatch error. The Paper Size Switch indicates that the media loaded in the source tray does not match the size specified by the print job.

## Initial Actions:

- Inspect the tray to ensure that it is free of obstructions, is loaded with the expected media, and the guides are adjusted correctly.
- Cycle printer power.
- If the problem persists, follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Paper Size Switch</li><li>■ Paper Tray</li><li>■ SIZE Harness</li></ul>	<ul style="list-style-type: none"><li>■ Paper Size Switch Signal Definitions table (see Book 1)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the paper in the affected tray. Is paper loaded in the tray properly?	Go to Step 2.	Reload the paper.
2	Check the tray paper guides. Are the paper guides set correctly?	Go to Step 3.	Reset the guides.
3	Check the Paper Size Switch for the affected tray. Is the switch installed correctly?	Go to Step 4.	Correct the installation.
4	Test the Paper Size Switch for the affected tray. Run the Service Diagnostics Size Sensor test for the affected tray. Does the sensor state change each time the loaded tray is moved in or out?	Go to Step 7.	Go to Step 5.
5	Check the Paper Size Switch connection. Is the switch connected at either end?	Go to Step 6.	Connect the switch.
6	Check continuity between the affected Paper Size Switch and the Option Control Board. Is the harness conductive?	Go to Step 7.	Repair the wiring.
7	Check for +5 V to the Paper Size Switch. Is there +5 V across each switch <=> ground when the switch is actuated?	Replace the Paper Size Switch for the affected tray (page 7-30).	Replace the Option Control Board.

# Duplex Interface Failure

Error occurs only after the detection of a properly installed and functioning Duplex Unit.

## Applicable Status Code:

**Code U12:** Communication lost with Duplex Unit

## Initial Actions:

- Reseat the Duplex Unit
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Duplex Unit</li><li>■ Motor Driver Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (5/6) (see Book 1)</li><li>■ Options Duplex Unit Sensors and Interconnect</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Duplex Unit connector for damage. Is the connector damaged?	Replace the connector.	Replace the Duplex Unit (page 5-122). If the error persists, go to Step 2.
2	Check all pins on the DUPLEX Harness for continuity. Disconnect the DUPLEX Harness. Is the DUPLEX Harness conductive?	Replace the Motor Driver Board (see Book 1). If the error persists, go to Step 3.	Replace the DUPLEX Harness.
3	Check all pins of the DRV1 harness for continuity. Disconnect the DRV1 ribbon cable. Is the cable conductive?	Replace the Engine Control Board (see Book 1).	Replace the DRV1 Harness.

# Tray [3][4][5][6] Interface Failure

A communications failure has occurred in the option tray interface.

## Applicable Status Codes:

**Code U14:** Tray 3 Interface Failure

**Code U13:** Tray 4 Interface Failure

**Code U16:** Tray 5 Interface Failure

**Code U17:** Tray 6 Interface Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Option Tray Control Board</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option Tray connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check all pins on the OPTIF Harness for continuity. Disconnect OPTIF from the Engine Control Board and Option connector. Is the harness conductive?	Replace the Option Control Board. If the error persists, replace the Engine Control Board (see Book 1).	Replace the OPTIF Harness.

# Inverter Unit Interface Failure

A communication error has occurred in the Finisher Inverter.

## Applicable Status Code:

**Code U51:** Inverter Unit Interface Failure.

## Initial Actions:

- Reseat the Finisher connections.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Inverter Control Board</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 3 Inverter Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Inverter Interface Cable</li><li>■ Inverter connections</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check the Inverter connection. Is the Inverter interface cable securely connected at both ends?	Go to Step 3.	Connect the Inverter to the Finisher.
3	Check all pins on the OPTIF Harness for continuity. Disconnect OPTIF from the Engine Control Board and Option connector. Is the harness conductive?	Replace the Inverter Control Board. If the error persists, replace the Engine Control Board (see Book 1).	Replace the OPTIF Harness.

# Unsupported Duplex Unit ROM

The installed Duplex Unit does not contain the correct firmware.

## Applicable Status Code:

**Code U34:** Unsupported Duplex Unit ROM

## Initial Actions:

- Reseat the Duplex Unit.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Duplex Unit</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 4 Duplex Unit Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Duplex Connector</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check that the Duplex Unit is correctly installed and fully seated.	Go to Step 3.	Reseat the Duplex Unit (page 5-122).
3	Check the Duplex Unit version using the Service Diagnostics General Status menu. Is the version current?	Replace Engine Control Board (see Book 1), if the error persists, replace the DUPLEX harness.	Replace the Duplex Unit (page 5-122).

# Unsupported Tray [3][4][5][6] ROM

The printer has detected an incompatible LTA or HCF assembly.

## Applicable Status Codes:

**Code U35:** Unsupported Tray 3 ROM

**Code U36:** Unsupported Tray 4 ROM

**Code U37:** Unsupported Tray 5 ROM

**Code U38:** Unsupported Tray 6 ROM

## Initial Actions:

- Reseat the Option Tray connector.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Option Control Board	■ Options Map 5 Paper Tray Controller Board

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Option Connector</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check that the optional tray is correctly installed and fully seated.	Go to Step 3.	Reseat the option tray.
3	Check the Option Control Board version using the Service Diagnostics General Status menu. Is the version current?	Replace the Engine Control Board (see Book 1)	Replace the Option Control Board.

# Unsupported Inverter Unit ROM

The printer has detected an incompatible Inverter assembly.

## Applicable Status Code:

**Code U50:** Unsupported Inverter ROM

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Inverter Control Board	■ Options Map 3 Inverter Controller Board

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Inverter firmware version using the Service Diagnostics General Status menu. Is the version current?	Replace the Engine Control Board (see Book 1)	Replace the Inverter Control Board (page 5-55).



# Unsupported Finisher Unit ROM

The printer has detected an incompatible Finisher.

## Applicable Status Code:

**Code U55:** Unsupported Finisher Unit ROM

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Finisher Control Board	■ Options Map 1 Finisher Controller Board

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Finisher firmware version using the Service Diagnostics General Status menu.	Replace the Engine Control Board (see Book 1)	Replace the Finisher Control Board (page 5-46).

# Finisher Fold Position Sensor Failure

An error was detected with the Fold Position Sensor.

## Applicable Status Code:

**Code F131:** Fold Position Sensor failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Fold Position Sensor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Map 8 Finisher Sensor Locator</li><li>■ Options Finisher Controller to Sensors (2/3)</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Folding Position Sensor. Run the Service Diagnostics Bookbinding Position Sensor test. Does the sensor function correctly?	Replace the Finisher Control Board.	Go to Step 2.
2	Check the sensor connection. Is CN39 connected?	Go to Step 3.	Reconnect the sensor.
3	Replace the sensor. Does the error persist?	Go to Step 4.	Complete
4	Check all pins on the harness for continuity. Is the harness conductive?	Replace the Finisher Control Board (page 5-46).	Replace the harness.

# Finisher Paddle Failure

An error was detected in the Finisher Paddle Motor.

## Applicable Status Code:

**Code F103:** Paddle Motor failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Paddle Motor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Motors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test these sensors. <ul style="list-style-type: none"><li>■ Swing Guide Home Position Sensor</li><li>■ Paddle Home Position Sensor</li></ul> Run the appropriate Service Diagnostics sensor test. Do the sensors operate?	Go to Step 2.	Replace the sensor. If the error persists, go to Step 2.
2	Test the Paddle Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Paddle Motor test. Does the motor operate?	Replace the Finisher Control Board (page 5-46). If the error persists, go to Step 4.	Go to Step 4.
3	Check for +24 V to the Paddle Motor. Disconnect CN57. Is there +24 V across CN57-1 and -2 <=> ground?	Replace the Delivery Motor (page 5-64).	Replace the harness. If the error persists, go to Step 5.
4	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56).	Replace the cable.

# Finisher Stapler Swing Motor Failure

The Stapler Swing Home Position Sensor detected a Stapler Swing Motor error.

## Applicable Status Code:

**Code F106:** Swing Motor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Stapler Swing Motor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Switches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Stapler Swing Home Position Sensor Run the Service Diagnostics Stapler Slide Home Position Sensor test. Do the sensors operate?	Go to Step 2.	Replace the sensor. If the error persists, go to Step 2.
2	Test the Swing Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Sliding Motor test. Does the motor operate?	Replace the Finisher Control Board (page 5-46). If the error persists, go to Step 4.	Go to Step 4.
3	Check for +24 V to the Swing Motor. Disconnect CN72. Is there +24 V across CN72-8 and -9 <=> ground?	Replace the Slide Motor (page 5-61).	Replace the harness. If the error persists, go to Step 5.
4	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56).	Replace the cable.

# Finisher Stack Handling Motor Failure

The Delivery Belt Home Position Sensor detected a Stack Handling error.

## Applicable Status Code:

**Code F111:** Stack Handling Motor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Stack Handling Motor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Motors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the delivery mechanism. Does the Delivery Belt turn freely when operated manually?	Go to Step 2.	Repair the mechanism.
2	Test the Delivery Belt Home Position Sensor. Run the Service Diagnostics Exit Belt Home Position Sensor test. Does the sensor operate?	Go to Step 3.	Replace the sensor. If the error persists, go to Step 3.
3	Test the Staple Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Staple Motor tests. Does the motor operate?	Replace the Finisher Control Board (page 5-46). If the error persists, go to Step 4.	Go to Step 4.
4	Check for +24 V to the Staple Motor. Disconnect CN59. Is there +24 V across CN59-1 and -2 <=> ground?	Replace the Stack Handling Motor (page 5-60).	Replace the harness. If the error persists, go to Step 5.
5	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56).	Replace the cable.

# Finisher Staple Motor Failure

An error was detected in the Staple Motor.

## Applicable Status Code:

**Code F110:** Staple Motor

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Staple Motor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Switches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test these sensors. <ul style="list-style-type: none"><li>■ Staple Clock Sensor</li><li>■ Fold Home Position Sensor</li></ul> Run the appropriate Service Diagnostics sensor test. Do the sensors operate?	Go to Step 2.	Replace the sensor. If the error persists, go to Step 2.
2	Test the Staple Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Staple Motor tests. Does the motor operate?	Replace the Finisher Control Board (page 5-46). If the error persists, go to Step 4.	Go to Step 3.
3	Check for +24 V to the Staple Motor. Disconnect CN71. Is there +24 V across CN71-1 and -2 <=> ground?	Replace the Staple Motor (page 5-60).	Replace the harness. If the error persists, go to Step 4.
4	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56).	Replace the cable.

# Finisher Jog Motor Failure

An error was detected in either the Front or Rear Alignment Motor.

## Applicable Status Code:

**Code F93:** Jog Motor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Paddle Assembly</li><li>■ Alignment Motors</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Motors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Paddle Assembly</li><li>■ Alignment Motors</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Test the Alignment Plate Sensors. Run the Service Diagnostics Front and Rear Alignment Plate Sensor tests. Do the sensors function correctly?	Replace the Paddle Assembly (page 5-43),	Replace the sensor.

# Finisher Lift Motor Failure

The Paper Surface, Upper Limit, or Lift Motor Clock Sensor detected a Lift Motor error.

## Applicable Status Code:

**Code F115:** Lift Motor Failure

## Initial Actions:

- Check the Tray lift mechanism for obstructions or damage.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Upper Tray Lift Motor</li><li>■ Finisher Control Board</li><li>■ Inverter Power Supply</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Switches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test each of these sensors. <ul style="list-style-type: none"><li>■ Paper Surface Sensor</li><li>■ Tray Upper Limit Sensor</li><li>■ Shift Motor Clock Sensor</li></ul> Run the appropriate Service Diagnostics sensor test. Do all sensors function correctly?	Go to Step 2.	Replace the sensor. If the error persists, go to Step 2.
2	Check the tray lift mechanism. Does the mechanism move freely?	Go to Step 5.	Repair the lift mechanism.
3	Test the Lift Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Shift Motor test. Does the motor operate?	Go to Step 8.	Replace the motor. If the error persists, go to Step 6.
4	Check for +24 V to the Lift Motor. Disconnect CN70. Is there +24 V across CN70-1 and -2 <=> ground when the test is executed?	Replace the Lift Motor (page 5-59).	Replace the Finisher Control Board (page 5-46). If the error persists, go to Step 5.



## Troubleshooting Procedure Table (Continued)

Step	Actions and Questions	Yes	No
5	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56).	Replace the cable.

# Finisher Exit Failure

The Delivery Belt Home Position Sensor detected a Delivery Motor error.

## Applicable Status Code:

**Code F116:** Delivery Motor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Delivery Motor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Motors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Exit Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Finisher Bundle Motor tests. Does the motor operate?	Complete.	Go to Step 2.
2	Check for +24 V to the Exit Motor. Disconnect CN59. Is the +24 V across CN59-1 and -2 <=> ground?	Replace the Exit Motor (page 5-64).	Go to Step 3.
3	Check Finisher Control Board for +24 V. 1. Disconnect CN13 on the Finisher Control Board. Is the +24 V across CN13-1 and -2?	Replace the Exit Motor Harness.	Replace the Finisher Control Board (page 5-46). If the error persists, go to Step 4.
4	Check the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56).	Replace the cable.

# Finisher Punch Backup RAM Failure

An error was detected in the Punch Unit's backup RAM.

## Applicable Status Code:

**Code F138:** Punch Unit's backup RAM failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Punch Control Board	■ Options Map 2 Punch Controller Board

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Punch Control Board connections. Are P/J2003 and P/J2004 connected?	Go to Step 2.	Reseat or reconnect the harness.
2	Cycle printer power. Does the error persist?	Replace the Punch Control Board (page 5-50).	Complete.

# Finisher Punch Communications Failure

An communications error occurred with the Punch Unit.

## Applicable Status Code:

**Code F132:** Punch Unit communications failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Control Board</li><li>■ Punch Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 2 Punch Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the connection between the Finisher and Punch Controller Boards. Are CN12 and CN14 on the Finisher Control Board connected? Are P/J2003 and P/J2004 on the Punch Control Board connected?	Go to Step 2.	Connect the harness.
2	Check all the pins of the harness for continuity. Is the cable conductive?	Go to Step 3.	Replace the harness.
3	Check for +24 V at the Finisher Control Board. Is there +24 V at CN14-5 ==> CN14-3?	Replace the Punch Control Board (page 5-50).	Replace the Finisher Control Board (page 5-46).

# Finisher Punch Unit Transfer Motor Failure

An error was detected in the Punch Transfer Motor.

## Applicable Status Code:

**Code F181:** Punch Transfer Motor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Punch Transfer Motor</li><li>■ Punch Control Board</li><li>■ Inverter Power Supply</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 2 Punch Controller Board</li><li>■ Options Punch Controller to Sensor and Motors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Punch Transfer Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Transfer Motor test. Does the motor operate?	Complete.	Go to Step 2.
2	Check for +24 V to the Punch Transfer Motor. Disconnect P/J2001. Is the +24 V across J2001-1 <=> ground?	Replace the Punch Transfer Motor.	Go to Step 3.
3	Check Punch Control Board for 24 V. 1. Disconnect P/J1001 on the Punch Control Board. Is the +24 V across P1001 pins 1 and 2?	Replace the Punch Transfer Motor Harness.	Replace the Punch Control Board (page 5-50). If the error persists, go to Step 4.
4	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter. Is the cable conductive?	Replace the Inverter Power Supply (page 5-56). If the error persists, replace the Finisher Control Board (page 5-46).	Replace the cable.

# Finisher Punch Motor Failure

An error was detected in the Punch Motor.

## Applicable Status Code:

**Code F134:** Punch Motor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Punch Motor</li><li>■ Punch Control Board</li><li>■ Inverter Power Supply</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 2 Punch Controller Board</li><li>■ Options Punch Controller to Sensor and Motors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Punch Motor. 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Punch Motor test.  Does the motor operate?	Complete.	Go to Step 2.
2	Check for +24 V to the Punch Motor. Disconnect P/J2002. Is the +24 V across J2002-1 <=> ground?	Replace the Punch Motor (page 5-50).	Go to Step 3.
3	Check Punch Control Board for 24 V. 1. Disconnect P/J1002 on the Punch Control Board.  Is the +24 V across P1002 pins 1 and 2?	Replace the Punch Motor Harness.	Replace the Punch Control Board (page 5-50). If the error persists, go to Step 4.
4	Check all pins of the Inverter Interface Cable for continuity. Disconnect CN1 and CN2 from the Finisher Control Board and the opposite end from the Inverter.  Is the cable conductive?	Replace the Inverter Power Supply (page 5-56). If the error persists, replace the Finisher Control Board (page 5-46).	Replace the cable.

# Finisher Backup RAM Failure

An error was detected in the Finisher’s backup RAM.

## Applicable Status Code:

**Code F137:** Finisher’s backup RAM Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Control Board</li><li>■ Finisher Interconnect Cable</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Printer</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Finisher Interconnect Cable</li><li>■ Finisher connections</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check all the pins of the Finisher Interconnect Cable for continuity. Is the cable conductive?	Go to Step 3.	Replace the cable.
3	Check all the pins of the OPTIF Harness for continuity. Is the harness conductive?	Go to Step 4.	Replace the OPTIF harness.
4	Replace the Finisher Control Board. Does the error persists?	Replace the Engine Control Board (see Book 1)	Complete.

# Finisher Punch Dust Sensor Failure

An error was detected in the Punch Waste Sensor.

## Applicable Status Code:

**Code F139:** Punch Waste Sensor Failure

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Punch Box Sensor Emitter Board	■ Options Map 2 Punch Controller Board
■ Punch Box Sensor Receiver Board	■ Options Punch Controller to Sensor and Motors

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Punch Box Sensor. Run the Service Diagnostics Punch Box Set Sensor test. Does the sensor state change when the emitter is blocked?	Go to Step 6.	Go to Step 2.
2	Check the Punch Box Sensor Harness connection. Is P/J1005 connected to the Punch Control Board? Are P/J2005 and P/J2006 connected to the Emitter and Receiver boards?	Go to Step 3.	Connect the harness.
3	Check the Punch Box Sensor Harness continuity. Is the harness conductive?	Go to Step 4.	Replace the harness.
4	Check the Punch Box Sensor Emitter Board. Is the LED illuminated?	Go to Step 5.	Replace the Punch Box Emitter Board.
5	Check for +5 V to the Punch Box Sensor. Disconnect P/J2006. Is there +5 V at J2006-1 <=> J2006-2?	Replace the Punch Box Sensor Receiver Board (see Book 1).	Replace the Punch Control Board (page 5-50).



## Troubleshooting Procedure Table (Continued)

Step	Actions and Questions	Yes	No
6	Replace the Finisher Control Board (page 5-46). Does the error still occur?	Replace the Engine Control Board (see Book 1).	Complete.

# Printer Error - Contact Service; report fault [n]

The following procedures apply to codes associated with the Printer Error message.

## Finisher Punch Unit Counter at End of Life

The Punch Count indicates that Punch Unit has reached its end of life.

### Applicable Status Code:

**Code F141:** Punch Unit at End of Life

### Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

### Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Punch</li><li>■ Punch Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 2 Punch Controller Board</li><li>■ Options Punch Controller to Sensor and Motors</li><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Printer</li></ul>

### Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Replace the Punch (page 5-24). Cycle printer power. Does the error persist?	Replace the Engine Control Board NVRAM. If the error persists, replace the Engine Control Board (see Book 1).	Complete.

# Finisher Staple Unit Counter at End of Life

## Applicable Status Code:

**Code F142:** Staple Unit at End of Life

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Stapler	■ Options Map 1 Finisher Controller Board ■ Options Finisher Controller to Printer

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Replace the Stapler (page 5-29). Cycle printer power. Does the error persist?	Replace the Engine Control Board NVRAM. If the error persists, replace the Engine Control Board (see Book 1).	Complete.

# Finisher Interface Error

## Applicable Status Code:

**Code F186:** Finisher serial communications error.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Finisher Control Board</li><li>■ Finisher Interconnect Cable</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 1 Finisher Controller Board</li><li>■ Options Finisher Controller to Printer</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Finisher Interconnect Cable</li><li>■ Finisher connections</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check all the pins of the Finisher Interconnect Cable for continuity. Is the cable conductive?	Go to Step 3.	Replace the cable.
3	Check all the pins of the OPTIF Harness for continuity. Is the harness conductive?	Go to Step 4.	Replace the OPTIF harness.
4	Replace the Finisher Control Board (page 5-46). Does the error persists?	Replace the Engine Control Board (see Book 1)	Complete.

# Inverter Power Supply Failure

## Applicable Status Code:

**Code I97:** Inverter hardware error

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Inverter Power Supply	■ Options Map 3 Inverter Controller Board ■ Options Inverter Motors

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Inverter Power Cord</li><li>■ Inverter Power Supply</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check AC Power. Is the AC voltage available at the outlet?	Go to Step 3.	Advise customer.
3	Check the Inverter connection. Is the Inverter interface cable securely connected at both ends?	Go to Step 4.	Connect the Inverter to the Finisher.
4	Replace the Inverter Power Supply (page 5-56). Does the error persist?	Replace the Inverter Control Board (page 5-46).	Complete.

# Tray [3][4][5][6] Firmware Error

## Applicable Status Codes:

**Code 221:** Software error in Tray 3 Flash Memory.

**Code 222:** Software error in Tray 4 Flash Memory.

**Code 223:** Software error in Tray 5 Flash Memory.

**Code 224:** Software error in Tray 6 Flash Memory.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Option Tray Control Board</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li><li>■ Options Paper Tray Sensors and Interconnect</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option Tray connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check all pins on the OPTIF Harness for continuity. Disconnect OPTIF from the Engine Control Board and Option connector. Is the harness conductive?	Replace the Option Control Board. If the error persists, replace the Engine Control Board (see Book 1).	Replace the OPTIF Harness.

# Duplex Unit Firmware Error

## Applicable Status Code:

**Code 225:** A firmware error with the Duplex Unit.

## Initial Actions:

- Reseat the Duplex Unit
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Duplex Unit</li><li>■ Motor Driver Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (5/6) (see Book 1)</li><li>■ Options Duplex Unit Sensors and Interconnect</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Duplex Unit connector for damage. Is the connector damaged?	Replace the connector.	Replace the Duplex Unit (page 5-122). If the error persists, go to Step 2.
2	Check all pins on the DUPLEX Harness for continuity. Disconnect the DUPLEX Harness. Is the DUPLEX Harness conductive?	Replace the Motor Driver Board (see Book 1). If the error persists, go to Step 3.	Replace the DUPLEX Harness.
3	Check all pins of the DRV1 harness for continuity. Disconnect the DRV1 ribbon cable. Is the cable conductive?	Replace the Engine Control Board (see Book 1).	Replace the DRV1 Harness.

# Finisher Inverter Firmware Error

## Applicable Status Code:

**Code 227:** A software error with the Inverter’s Flash Memory.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Inverter Control Board	■ Print Engine Map 3 (see Book 1) ■ Print Engine Motor Driver Board (6/6) (see Book 1) ■ Options Map 3 Inverter Controller Board

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Inverter Interface Cable</li><li>■ Inverter connections</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check the Inverter connection. Is the Inverter interface cable securely connected at both ends?	Go to Step 3.	Connect the Inverter to the Finisher.
3	Check the version of Inverter firmware. Is the latest version installed?	Replace the Inverter Control Board (page 5-55).	Reload the Inverter firmware.



# Tray [3][4][5][6] Flash Memory Failure

## Applicable Status Codes:

**Code 242:** Hardware error in Tray 3 Flash Memory.

**Code 243:** Hardware error in Tray 4 Flash Memory.

**Code 244:** Hardware error in Tray 5 Flash Memory.

**Code 245:** Hardware error in Tray 6 Flash Memory.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Option Tray Control Board</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option Tray connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check all pins on the OPTIF Harness for continuity. Disconnect OPTIF from the Engine Control Board and Option connector. Is the harness conductive?	Replace the Option Control Board. If the error persists, replace the Engine Control Board (see Book 1).	Replace the OPTIF Harness.

# Duplex Unit Flash Memory Failure

## Applicable Status Code:

**Code 246:** Hardware failure with Duplex Unit Flash Memory.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Duplex Unit</li><li>■ Motor Driver Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (5/6) (see Book 1)</li><li>■ Options Map 4 Duplex Unit Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Duplex Unit connector for damage. Is the connector damaged?	Replace the connector.	Replace the Duplex Unit (page 5-122). If the error persists, go to Step 2.
2	Check all pins on the DUPLEX Harness for continuity. Disconnect the DUPLEX Harness. Is the DUPLEX Harness conductive?	Replace the Motor Driver Board (see Book 1). If the error persists, go to Step 3.	Replace the DUPLEX Harness.
3	Check all pins of the DRV1 harness for continuity. Disconnect the DRV1 ribbon cable. Is the cable conductive?	Replace the Engine Control Board (see Book 1).	Replace the DRV1 Harness.

# Finisher Inverter Flash Memory Failure

## Applicable Status Code:

**Code 225:** Hardware failure with Inverter Flash Memory.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
■ Inverter Control Board	■ Options Map 3 Inverter Controller Board

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ Inverter Control Board</li><li>■ Inverter Interface Cable</li><li>■ Inverter connections</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 2.
2	Check the Inverter connection. Is the Inverter interface cable securely connected at both ends?	Go to Step 3.	Connect the Inverter to the Finisher.
3	Check the connections at the Inverter Control Board. Are the connections secure?	Replace the Inverter Control Board (page 5-55).	Reconnect the connectors.

# Tray [3][4][5][6] Lift Motor Failure

## Applicable Status Codes:

- Code 911:** The Tray 3 Lift Motor is not rotating.
- Code 912:** The Tray 4 Lift Motor is not rotating.
- Code 913:** The Tray 5 Lift Motor is not rotating.
- Code 914:** The Tray 6 Lift Motor is not rotating.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Lift Motor</li><li>■ Option Control Board</li><li>■ Engine Control Board</li><li>■ LVPS</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Print Engine LVPS (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li><li>■ Options Paper Tray Motors and Clutches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option Tray connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Test the appropriate Lift Motor (page 5-139). 1. Close the Interlock Switches for test. 2. Run the Service Diagnostics Lift Motor test. Does the motor operate?	Go to Step 3.	Replace the motor. If the error persists, go to Step 4.
3	Check all pins on the OPTIF Harness for continuity. Disconnect OPTIF from the Engine Control Board and Option connector. Is the harness conductive?	Replace the Option Control Board. If the error persists, replace the Engine Control Board (see Book 1).	Replace the OPTIF Harness.

## Troubleshooting Procedure Table (Continued)

<b>Step</b>	<b>Actions and Questions</b>	<b>Yes</b>	<b>No</b>
<b>4</b>	Check for +24 V at OPTRY24. 1. Close the Interlock Switches. 2. Disconnect OPTRY24. Is there +24 V at OPTRY24-1 and -2 <=> ground?	Replace the affected Option Control Board.	Go to Step 5.
<b>5</b>	Check all pins on the OPTRY24 Harness for continuity. Disconnect the OPTRY24 Harness. Is the OPTRY24 Harness conductive?	Go to Step 6.	Replace the OPTRY24 Harness.
<b>6</b>	Check for +24 V from the LVPS. Disconnect POW24. Is there +24 V at POW24-1 <=> ground?	Replace the Motor Driver Board (see Book 1)	Go to Step 7.
<b>7</b>	Check the LVPS +24 V output. 1. Close the Interlock Switches. 2. Disconnect CN2. Is there +24 V at CN2-1 and <=> ground?	Replace the Engine Control Board (see Book 1)	Replace the LVPS (see Book 1).

# Duplex Unit Fan Failure

The Duplex Fan rotation signal indicates the Duplex Fan has stopped rotating.

## Applicable Status Code:

**Code 918:** The Duplex Fan has failed.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Duplex Unit Fan</li><li>■ Duplex Unit Control Board</li><li>■ Duplex Unit</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (5/6) (see Book 1)</li><li>■ Options Map 4 Duplex Unit Controller Board</li><li>■ Options Duplex Unit Motors and Solenoid</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Duplex Unit connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Test the Duplex Unit Fan. Run the Service Diagnostics Duplex Fan test. Does the Fan function correctly?	Go to Step 3.	Replace the Duplex Unit (page 5-122). If the error persists, go to Step 3.
3	Check all pins on the DUPLEX Harness for continuity. Disconnect the DUPLEX Harness. Is the DUPLEX Harness conductive?	Replace the Motor Driver Board (see Book 1). If the error persists, go to Step 4.	Replace the DUPLEX Harness.
4	Check all pins of the DRV1 harness for continuity. Disconnect the DRV1 ribbon cable. Is the cable conductive?	Replace the Engine Control Board (see Book 1).	Replace the DRV1 Harness.

# +24V Not Available to the Duplex Unit

Abnormal current indicates that +24 V is not being supplied to the Duplex Unit.

## Applicable Status Code:

**Code 225:** Duplex Unit is not receiving +24 V.

## Initial Actions:

- Reseat the Duplex Unit.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Motor Driver Board</li><li>■ LVPS</li><li>■ Duplex Unit</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Map 6 (see Book 1)</li><li>■ Print Engine Motor Driver Board (1/6) (see Book 1)</li><li>■ Print Engine Motor Driver Board (5/6) (see Book 1)</li><li>■ Print Engine LVPS (see Book 1)</li><li>■ Options Map 4 Duplex Unit Controller Board</li><li>■ Options Duplex Unit Motors and Solenoid</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Duplex Unit connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check for +24 V at DUPLEX on the Motor Driver Board. 1. Close the Interlock Switches. 2. Disconnect DUPLEX. Is there +24 V at DUPLEX-6 and -13 <=> ground?	Replace the Duplex Control Board (page 5-139).	Go to Step 3.
3	Check all pins on the DUPLEX Harness for continuity. Disconnect the DUPLEX Harness. Is the DUPLEX Harness conductive?	Go to Step 4.	Replace the DUPLEX Harness.
4	Check for +24 V from the LVPS. Disconnect POW24 on the Motor Driver Board. Is there +24 V at POW24-1 <=> ground?	Replace the Motor Driver Board (see Book 1)	Go to Step 5.

Troubleshooting Procedure Table (Continued)

Step	Actions and Questions	Yes	No
5	Check the LVPS +24 V output. 1. Close the Interlock Switches. 2. Disconnect CN2. Is there +24 V at CN2-1 and <=> ground?	Go to Step 6.	Replace the LVPS (see book 1).
6	Check all pins of the DRV1 harness for continuity. Disconnect the DRV1 ribbon cable. Is the cable conductive?	Replace the Engine Control Board (see Book 1).	Replace the DRV1 Harness.



# +24 V Not Available to Tray [3][4][5][6]

Voltage detection indicates that +24 V is not available to the indicated option tray.

## Applicable Status Codes:

- Code 924:** Tray 3 not receiving +24 V
- Code 925:** Tray 4 not receiving +24 V
- Code 926:** Tray 5 not receiving +24 V
- Code 927:** Tray 6 not receiving +24 V

## Initial Actions:

- Reset the Option connector at the base of the printer.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Motor Driver Board</li><li>■ LVPS</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Paper Tray Motors and Interconnect</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option Tray connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check for +24 V at OPRY24. 1. Close the Interlock Switches. 2. Disconnect OPRY24. Is there +24 V at OPRY24-1 and -2 <=> ground?	Replace the affected Option Control Board.	Go to Step 3.
3	Check all pins on the OPRY24 Harness for continuity. Disconnect the OPRY24 Harness. Is the OPRY24 Harness conductive?	Go to Step 4.	Replace the OPRY24 Harness.
4	Check for +24 V from the LVPS. Disconnect POW24. Is there +24 V at POW24-1 <=> ground?	Replace the Motor Driver Board (see Book 1)	Go to Step 5.
5	Check the LVPS +24 V output. 1. Close the Interlock Switches. 2. Disconnect CN2. Is there +24 V at CN2-1 and <=> ground?	Replace the Engine Control Board (see Book 1)	Replace the LVPS (see Book 1).

# Duplex Unit Clock Frequency Error

The clock frequency for the Duplex Unit Control Board CPU is inaccurate.

## Applicable Status Code:

**Code 931:** The Duplex Unit's CPU clock frequency is inaccurate.

## Initial Actions:

- Reseat the Duplex Unit.
- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Motor Driver Board</li><li>■ Duplex Unit</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Map 5 (see Book 1)</li><li>■ Print Engine Motor Driver Board (5/6) (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 4 Duplex Unit Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Duplex Unit connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check all pins on the DUPLEX Harness for continuity. Disconnect the DUPLEX Harness. Is the DUPLEX Harness conductive?	Replace the Duplex Unit (page 5-122). If the error persists, go to Step 3.	Replace the DUPLEX Harness.
3	Check all pins of the DRV1 harness for continuity. Disconnect the DRV1 ribbon cable. Is the cable conductive?	Replace the Engine Control Board (see Book 1).	Replace the DRV1 Harness.

# Finisher Inverter Clock Frequency Error

The clock frequency for the Inverter Control Board CPU is inaccurate.

## Applicable Status Code:

**Code 932:** The Inverter's CPU clock frequency is inaccurate.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Inverter Control Board</li><li>■ Engine Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 3 Inverter Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option connection. Is the Option connection from the Inverter to the Printer damaged or disconnected?	Reconnect or replace the cable.	Go to Step 2.
2	Check all pins on the Option Harness for continuity. Disconnect OPTIF from the Engine Control Board and the Option connector. Is the harness conductive?	Go to Step 3.	Replace the Option harness.
3	Check the Inverter Control Board POWER connection. Is POWER disconnected or damaged?	Replace or reconnect the harness.	Replace the Inverter Control Board (page 5-55). If the error persists, replace the Engine Control Board (see Book 1).

# Tray [3][4][5][6] Feeder Board Clock Frequency Error

The clock frequency on the indicated Feeder Board is inaccurate.

## Applicable Status Codes:

- Code 933:** Tray 3 Feeder Board CPU clock frequency is inaccurate.
- Code 934:** Tray 4 Feeder Board CPU clock frequency is inaccurate.
- Code 935:** Tray 5 Feeder Board CPU clock frequency is inaccurate.
- Code 936:** Tray 6 Feeder Board CPU clock frequency is inaccurate.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Option Feeder Board</li><li>■ Engine Control Board, PL1.1.4</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 3 (see Book 1)</li><li>■ Print Engine Motor Driver Board (6/6) (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the Option Tray connector for damage. Is the connector damaged?	Replace the connector.	Go to Step 2.
2	Check all pins on the OPTIF Harness for continuity. Disconnect OPTIF from the Engine Control Board and Option connector. Is the harness conductive?	Replace the Option Feeder Board. If the error persists, replace the Engine Control Board (see Book 1).	Replace the OPTIF Harness.

# No Paper in Tray [2][3][4][5][6]

The No Paper Sensor indicates that the named tray is empty.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ No Paper Sensor</li><li>■ No Paper Actuator</li></ul>	<ul style="list-style-type: none"><li>■ Print Engine Map 12 (see Book 1)</li><li>■ Print Engine Feeder Board (see Book 1)</li><li>■ Options Map 5 Paper Tray Controller Board</li><li>■ Options Map 6 Paper Tray Feeder Board</li><li>■ Options Paper Tray Sensors and Interconnect</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Fill the tray. Does the error occur even if the tray is full?	Go to Step 2.	Complete
2	Check the following for evidence of fault or damage: <ul style="list-style-type: none"><li>■ No Paper Sensor and actuator</li></ul> Is there any damage?	Replace any damaged parts.	Go to Step 3.
3	Test the No Paper Sensor. for the affected tray. Run the Service Diagnostics No Paper Sensor test. Does the sensor function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 4.
4	Check the No Paper Sensor signal. Does the voltage level change when the sensor is actuated?	Go to Step 5.	Replace the No Paper Sensor (page 5-142).
5	Check all pins on the TRYSNS1 Harness for continuity. Is the harness conductive?	Replace the Engine Control Board (see Book 1).	Replace the TRYSNS1 Harness.

# Staple Cartridge Is Empty

The Stapler Self-Prime Sensor in the Staple Cartridge indicates no staples remain.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Stapler Self-Prime Sensor</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 1 Finisher Controller Board</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Stapler Self-Prime Sensor. Run the Service Diagnostics Stapler Self-Prime Sensor test. Does the sensor state change when the Staple Cartridge is removed or replaced?	Go to Step 9.	Go to Step 2.
2	Check the Staple Cartridge for faulty parts or debris. Are there damaged parts or debris?	Replace faulty parts or clean as needed.	Go to Step 3.
3	Check the Staple Harness connections. Is the Staple Harness connected?	Go to Step 5.	Connect the harness. If the error persists, go to Step 4.
4	Check Staple Harness continuity. Is the Staple Harness conductive?	Go to Step 6.	Replace the Staple Harness.
5	Check for +5 V to the Stapler Self-Prime Sensor. Is there +5 V on the Finisher Control Board?	Go to Step 7.	Replace the Finisher Control Board (page 5-46).
6	Check the Stapler Self-Prime signal. Does the voltage on the Finisher Control Board change when the Staple Cartridge is removed or replaced?	Go to Step 8.	Replace the Finisher Control Board (page 5-46).
7	Replace the Stapler Assembly (page 5-29). Does the error still occur?	Go to Step 9.	Complete.
8	Replace the Finisher Control Board (page 5-46). Does the error still occur?	Replace Engine Control Board (see Book 1).	Complete.

# Punch Waste Box is Full or Missing

The Punch Box Sensor indicates the Punch Box is full or not installed in the Finisher.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Punch Box Sensor Emitter Board</li><li>■ Punch Box Sensor Receiver Board</li><li>■ Punch Box Sensor Harness</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 2 Punch Controller Board</li><li>■ Options Punch Controller to Sensors</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Test the Punch Box Set Sensor. Run the Service Diagnostics Punch Box Set Sensor test. Does the sensor state change when the emitter is blocked?	Go to Step 6.	Go to Step 2.
2	Check the Punch Box Sensor Harness connections. Is P/J1005 connected to the Punch Control Board? Are P/J2005 and P/J2006 connected to the Emitter and Receiver boards?	Go to Step 3.	Connect the harness.
3	Check the Punch Box Sensor Harness continuity. Is the harness conductive?	Go to Step 5.	Replace the harness.
4	Check the Punch Box Sensor Emitter Board. Is the LED illuminated?	Go to Step 5.	Replace the Punch Box Sensor Emitter Board.
5	Check for +5 V to the Punch Box Sensor. Disconnect P/J2006. Is there +5 V across J2006-1 <=> J2006-2?	Replace the Punch Box Sensor Receiver Board.	Replace the Punch Control Board (page 5-50).
6	Replace the Finisher Control Board (page 5-46). Does the error still occur?	Replace Engine Control Board (see Book 1).	Complete.

# Finisher Away From Base

The Finisher Switch indicates that the Finisher is detached from the Inverter.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Joint Switch</li><li>■ Finisher Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 7 Finisher Sensor Locator</li><li>■ Options Finisher Controller to Switches</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, damage, obstruction, or debris: <ul style="list-style-type: none"><li>■ Joint Switch and actuator</li><li>■ Finisher Base</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Joint Switch <b>NOTE:</b> Door sensor tests are located under the Covers, Doors, and Interlocks sub-menu. Run the Service Diagnostics Joint Switch test. Does the switch function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Check the switch signal. Disconnect CN8 from the Finisher Control Board. Is there +24 V at CN8-5 when the switch is activated?	Replace the Finisher Control Board (page 5-46).	Go to Step 4.
4	Check the switch signal. Disconnect CN8 from the Finisher Control Board. Is there +24 V at CN8-6 when the switch is activated?	Replace the Joint Switch (page 5-73). If the error persists, replace the wiring.	Replace the Finisher Control Board (page 5-46).



# Finisher Away From Printer

The Inverter Docking (Joint) Switch indicates that the Finisher is detached from the printer.

## Initial Actions:

- Cycle the printer's power.
- If the problem persists follow the procedure below.

## Troubleshooting Reference Table

Applicable Parts	Wiring and Plug/Jack References
<ul style="list-style-type: none"><li>■ Inverter Docking Sensor</li><li>■ Inverter Control Board</li></ul>	<ul style="list-style-type: none"><li>■ Options Map 9 Inverter Sensor Locator</li><li>■ Options Inverter Sensors diagram</li></ul>

## Troubleshooting Procedure Table

Step	Actions and Questions	Yes	No
1	Check the following for evidence of fault, damage, obstruction, or debris: <ul style="list-style-type: none"><li>■ Inverter Docking Sensor</li><li>■ Finisher Base</li></ul> Are there any defects or misalignment?	Replace any damaged parts.	Go to Step 2.
2	Test the Inverter Joint Sensor Run the Service Diagnostics Inverter Joint Sensor test. Does the switch function correctly?	Replace the Engine Control Board (see Book 1).	Go to Step 3.
3	Check the Inverter Docking Sensor signal. Disconnect SNSCN1 from the Inverter Control Board. Does the voltage change between 0 and 5vdc on connector SNSCN1-2 when the sensor is actuated?	Replace the Inverter Control Board (page 5-55).	Replace the sensor (page 5-100). If the error persists, replace the harness.



# Adjustments and Calibrations

## In this chapter...

- Punch Unit Adjustments
- Staple Unit Adjustments
- Saddle Unit Adjustments

## Section 4

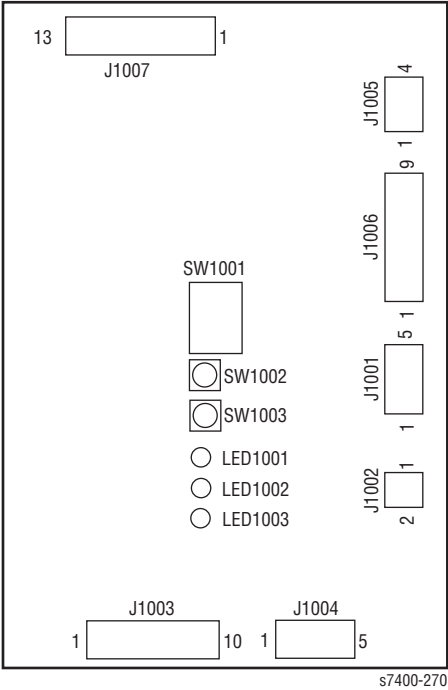


# Punch Unit Adjustments

## Registering Punch Holes

Perform the following steps to identify the type of punch unit and associated number of punch holes. The Punch Controller Board uses this switching information to identify and register the finisher type whenever you replace the board. To register the punch holes:

1. Locate DIP switches SW1001, SW1002, and SW1003 and LEDs LED1001, LED1002, and LED1003 on the Punch Controller Board.



2. Set bits 1 through 4 on the switch SW1001 on the Punch Controller Board as follows:



3. Press Switch SW1002 on the Punch Controller Board to select the appropriate number of punch holes. Each press on SW1002 moves the selection through the following (repeatedly from top to bottom).

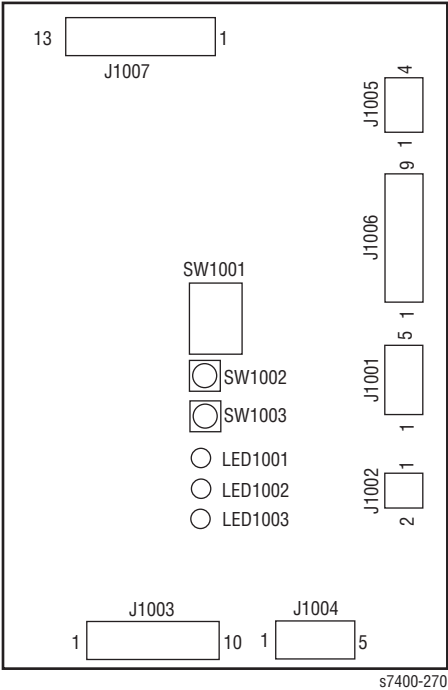
<b>Number of punch holes</b>	<b>LED1001</b>	<b>LED1002</b>	<b>LED1003</b>
2 holes (punch Unit-J1)	ON	OFF	OFF
2/3 holes (punch Unit-K1)	ON	ON	OFF
4 holes (punch Unit-G1)	OFF	OFF	OFF
4 holes (punch Unit-H1)	OFF	OFF	ON

4. Press switch SW1003 on the Punch Controller Board twice. The presses will store the selected number of punch holes on the Punch Controller Board.
  - A single press on SW1003 will cause the LED indication to flash
  - Another press on SW1003 will cause the indication to remain ON to indicate the end of registration.
5. Shift all bits of DIPSW1001 to OFF (this action ensures that the LEDs will remain unaffected and the switch setting will have no further effect).

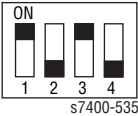
# Adjusting Sensor Output After Sensor Replacement

Perform the following steps whenever you replace the Punch Controller Board, horizontal registration sensor (photosensor board/LED board), or waste full sensor (waste full photosensor board/waste full LED board):

- 1. Locate DIP switches SW1001, SW1002, and SW1003 and LEDs LED1001, LED1002, and LED1003 on the Punch Controller Board.



- 2. For DIP switch SW1001 on the Punch Controller Board, press shift bits 1 through 4 as follows:

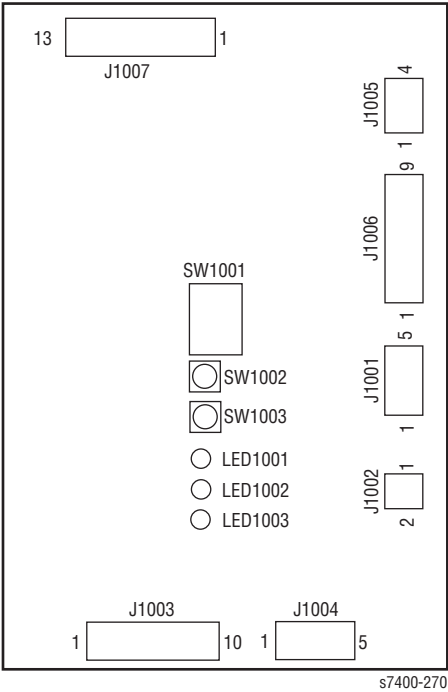


- 3. Press switches SW1002 or SW1003 on the Punch Controller Board:
  - Pressing either switch will adjust the sensor output.
  - The adjustment is complete when all LEDs on the Punch Controller Board are ON for LEDS LED1001, LED1002, LED1003.
- 4. Shift all bits of DIPSW1001 to OFF (this action ensures that the LEDs will remain unaffected and the switch setting will have no further effect).

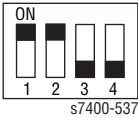
# Adjusting Sensor Output After EE-PROM Replacement

To adjust the sensor output after replacing the EE-PROM, use the following steps:

1. Turn off the Phaser 7400 Color Printer.
2. Locate DIP switches SW1001, SW1002, and SW1003 and LEDs LED1001, LED1002, and LED1003 on the Punch Controller Board.



3. For DIP switch SW1001 on the Punch Controller Board, press shift bits 1 through 4 as follows:



- Press switches SW1002 and SW1003 on the Punch Controller Board simultaneously.
  - The presses will initialize the EEP-ROM. At the end, all LEDs(LED1001, LED1002, LED1003) will go ON.
4. Adjust the sensor output (page 4-4) and register the number of punch holes (page 4-2).

# Stapler Unit Adjustments

## Adjusting the Saddle Stitch Double Stapling Position

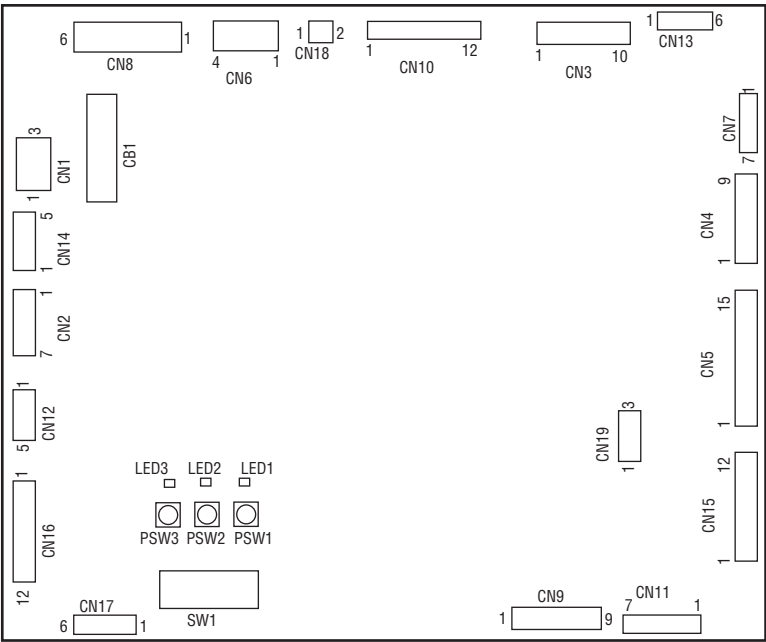
To adjust the stapling position for middle 2-point stapling, you must match it with the folding position. If you have replaced the Finisher Controller Board, you must transfer the existing settings to the new board.

**Note**

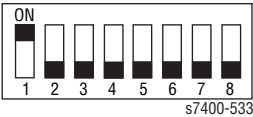
Both the folding and stapling positions may vary for some types of paper. In these cases, change the middle stapling position in the user mode of the printer.

Use the following steps:

- 1. Locate DIP switch SW1 on the Finisher Controller Board.



- 2. Set switch SW1 on the Finisher Controller Board as follows.

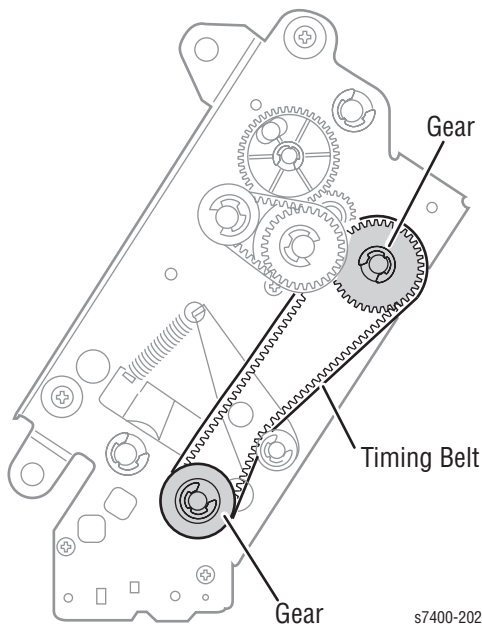




3. Press switches PSW1 or PSW2 on the Finisher Controller Board as necessary to move the stapling position to the proper location (pressing the switch once moves the stapling position about 0.14 mm):
  - To move the stapling position in the "-" direction, press switch PSW1.
  - To move the stapling position in the "+" direction, press switch PSW2.
  - Pressing the PSW1 and PSW2 at the same time clears the adjustment value.
4. After adjusting the stapling position, set all bits of switch SW1 on the Finisher Controller Board to OFF (this action ensures that the LEDs will remain unaffected and the switch setting will have no further effect).
5. Enter the **booklet mode** of the printer and check whether the stapling position is adjusted properly. If necessary, adjust repeat the above steps to adjust the stapling position again.

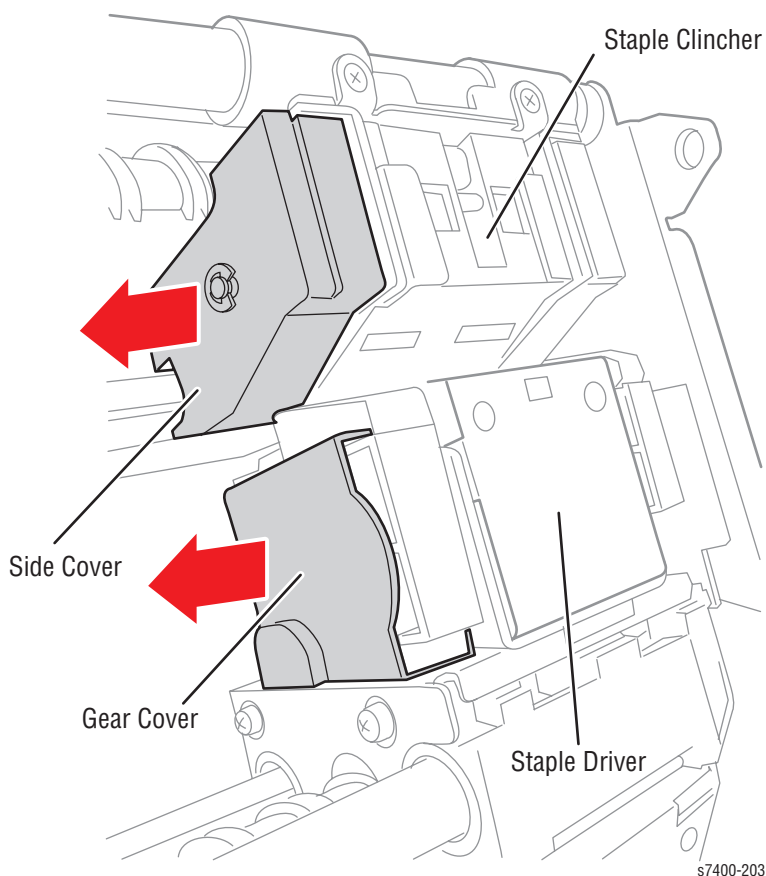
## Adjusting the Stapler Phase

When you remove or replace the gears or timing belt at the front of the stapler, the staple insertion timing of the staple unit may be faulty. Use the following steps to adjust the timing for the Finisher stapler phase.



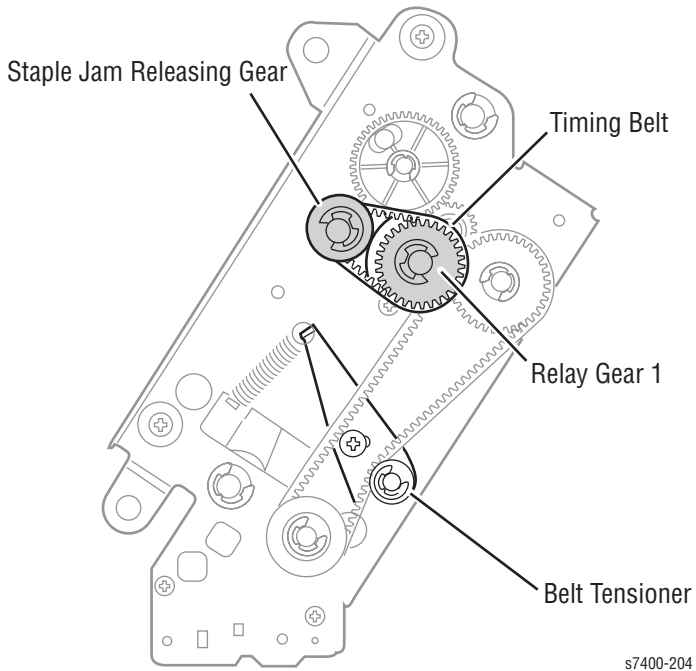
1. Remove the two knobs from the front of the Staple Unit.
2. Remove 3 screws and remove the Staple Unit Cover.
3. Detach the gear cover from the staple driver.

4. Remove the E-ring to detach the side cover of the staple clincher.



5. Remove the two E-rings to remove the staple jam releasing gear, timing belt, and relay gear 1. Remove the spacer and spring at the back of the staple jam releasing gear.

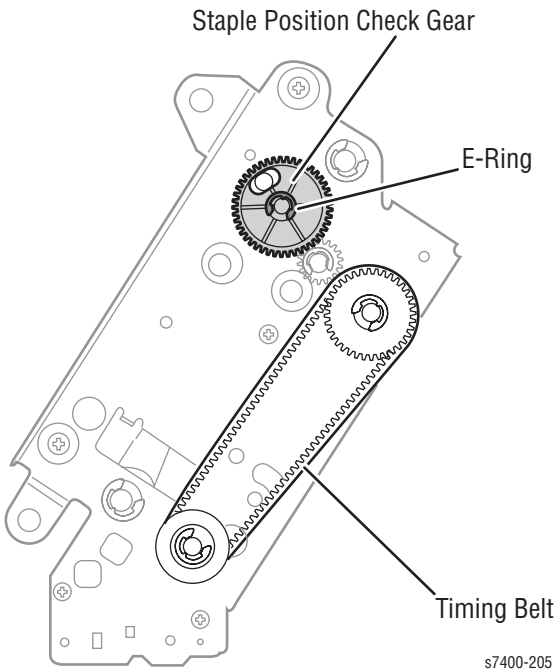
6. Remove the screw to remove the belt tensioner from its mounting post (also remove the spring).



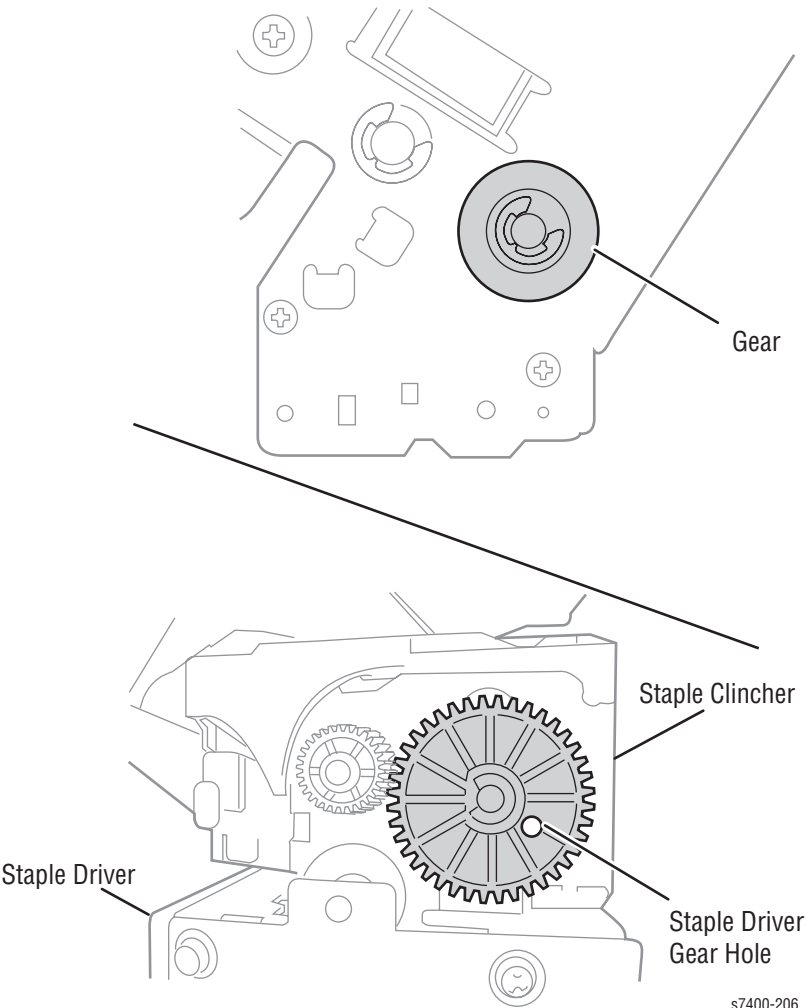
s7400-204

7. Remove the timing belt.

8. Remove the E-ring to remove the staple position check gear.

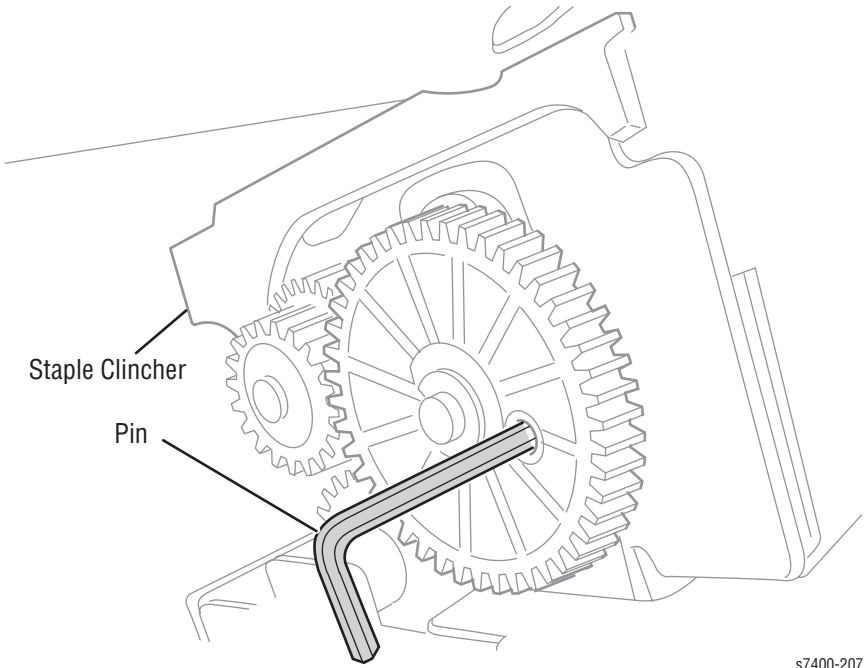


9. Turn the gear to align the round hole in the staple driver gear with the round hole at the back.



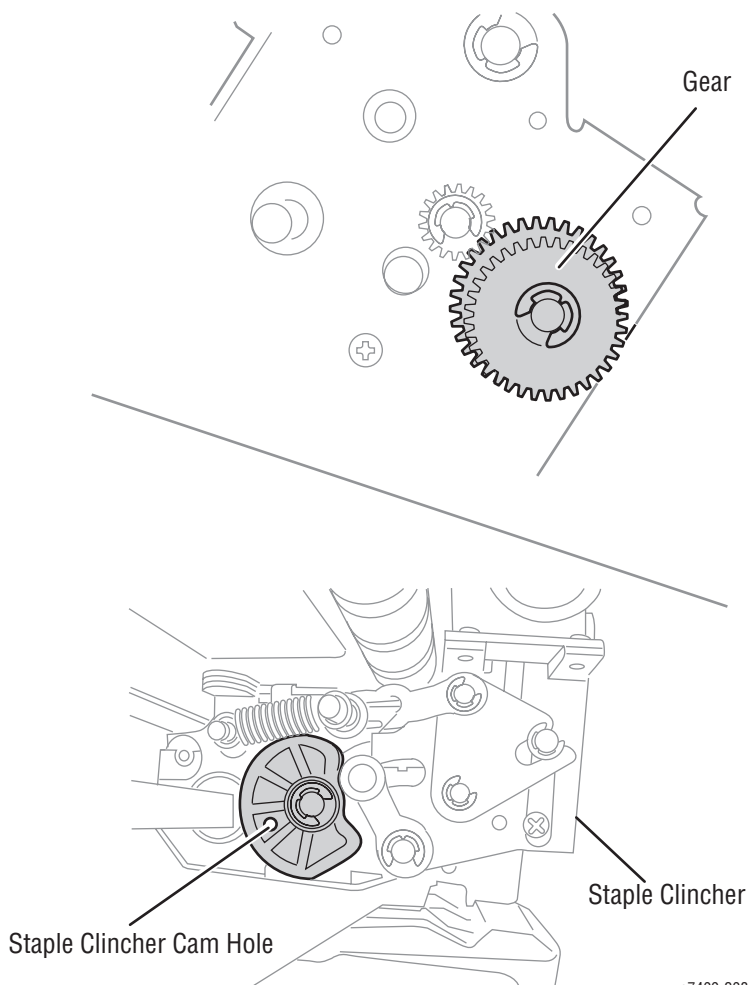
s7400-206

10. Insert a pin with a diameter of approximately 2 mm (use recommended diameter size) in the round hole to secure the gear.



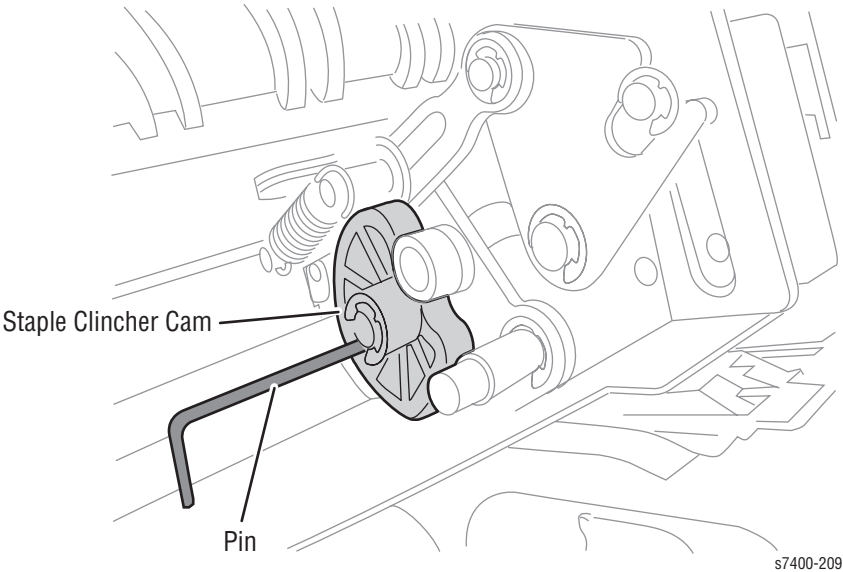
s7400-207

- 11.** Turn the gear to align the round hole in the staple clincher cam with the round hole at the back.

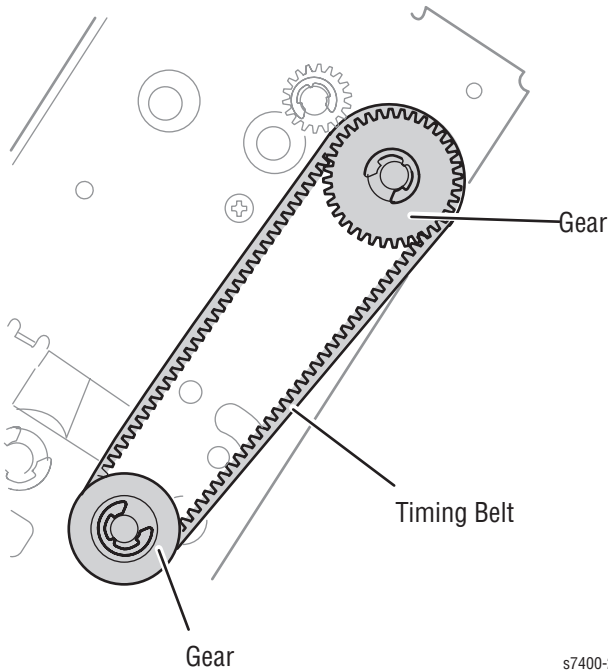


s7400-208

- 12.** Insert a pin with a diameter of approximately 2 mm (use of a 2 mm Allen wrench as recommended) in the round hole to secure the gear.



- 13.** With the gears and cam fixed, install the timing belt on the gears.

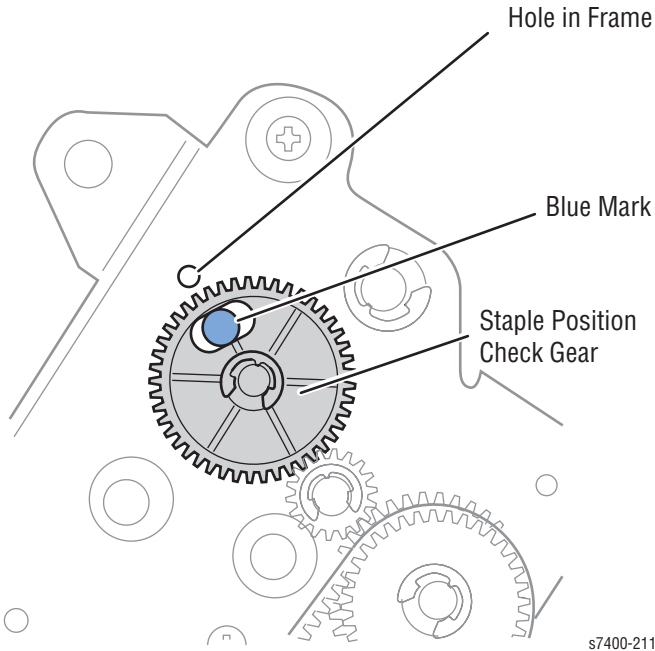




14. Mount the staple position check gear so that the blue mark on the staple position check gear is aligned with the round hole in the frame. Reinstall the E-ring on the gear.

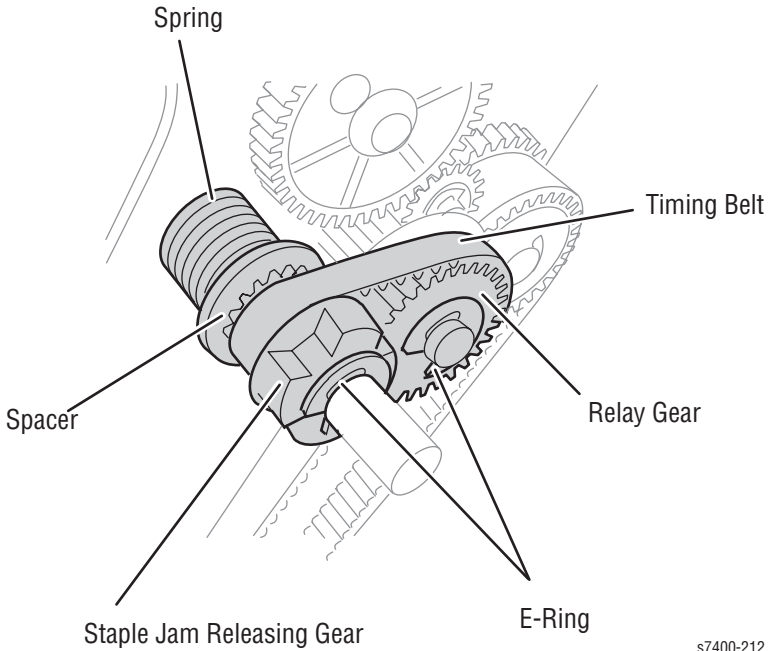
### Caution

It is necessary to mount the gear at the correct position. The position where the blue mark aligns with the round hole is the home position for stapling. If you move the staple jam cancel dial, the home position deviates, making it impossible to remove the stapler cartridge. If this happens, you can return the gear to the home position by checking the blue mark position with the cover installed.



15. Remove the pins securing the gear and the cam.

- 16.** Assemble the spring, spacer, staple jam releasing gear, timing belt, and relay gear. Secure them with the E-ring.



s7400-212

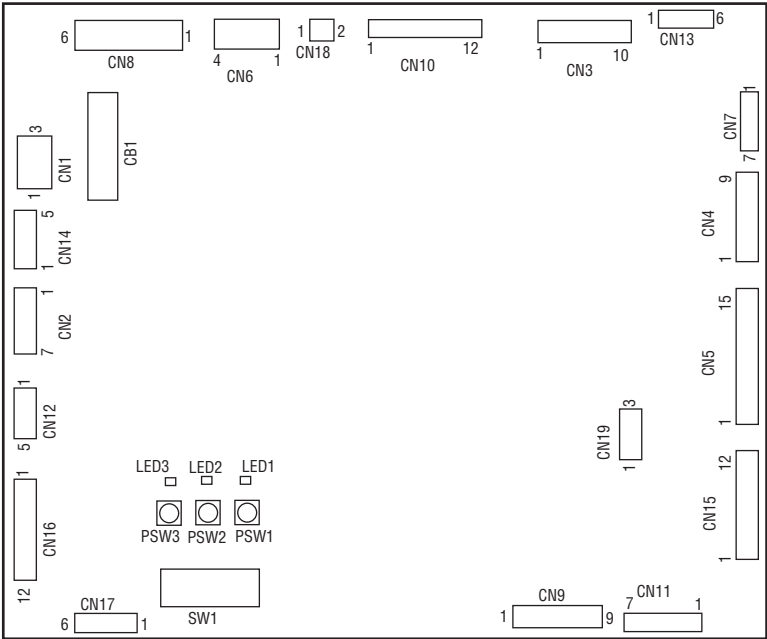
- 17.** Replace the front cover and two knobs and reinstall the Stapler Unit.

# Saddle Unit Adjustments

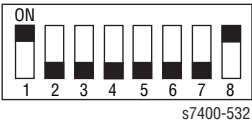
## Adjusting the Folding Position

If you replace the Finisher Controller Board, you must match the folding position to the stapling position. Perform the following steps:

1. Locate DIP switch SW1 on the Finisher Controller Board.



2. Set SW1 on the Finisher Controller Board as follows:



3. To adjust the folding position, press the PSW1 or PSW2 switches on the Finisher Controller Board as necessary to move the folding position to the correct location.

Pressing the switch once moves the folding position about 0.16 mm.

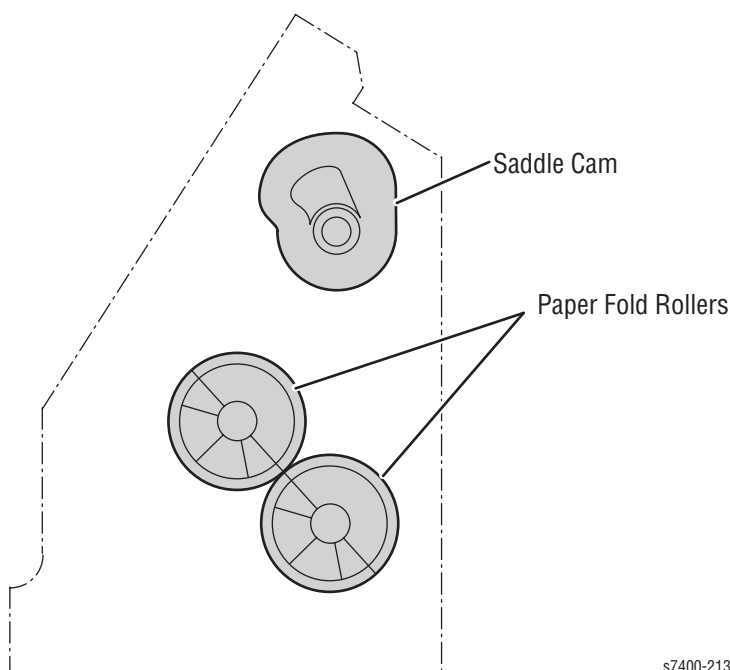
- To move the folding position in the "-" direction, press PSW1.
- To move the folding position in the "+" direction, press PSW2.
- Pressing the PSW1 and PSW2 at the same time clears the adjustment value.

4. After adjusting the folding position, set all bits of SW1 on the Finisher Controller Board to OFF (this action will ensure that the switch will no longer affect the settings).
5. Enter the **booklet mode** of the printer and check whether the folding position is adjusted properly. If necessary, repeat the procedure.

## Adjusting the Phase of the Saddle Unit Gear

If you replace or remove the gears at the front of the saddle unit or the paper fold rollers in the saddle unit, adjust the gear phase using the following procedure:

1. Position the paper fold rollers and saddle cam as shown below.



s7400-213

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- This diagram illustrates the gear train within the saddle cam drive mechanism. It shows a series of interlocking gears: the Saddle Cam Drive Gear at the top, followed by the Relay Gear, and then the Paper Folding Roller Drive Gear. A fourth gear is shown at the bottom, which is part of the roller assembly. The gears are mounted on a common frame, and their interlocking arrangement ensures the synchronized rotation of the cam and rollers.

- ## Adjustments and Calibrations



# Service Parts Disassembly

## In this chapter...

- General Notes on Disassembly
- Overview
- Finisher Disassembly
- Inverter Disassembly
- Duplex Unit Disassembly
- Optional Paper Tray Disassembly

Section

5



# Overview

This section contains the removal and replacement procedures for selected parts of the printer options package according to the Field Replaceable Units (FRUs) Parts List. Not all replacement procedures are included in this Service Manual. In most cases, to reinstall a part, simply reverse the removal procedure shown. In some instances, replacement notes are included providing special steps. For specific assemblies and parts, see the "Parts List" on page 6-1.

## General Notes on Disassembly

### Preparation

Before you begin any Removal and Replacement Procedure:

1. Switch Off the printer power, as well as power to the Finisher and options.
2. Wear an electrostatic discharge wrist strap to help prevent damage to the sensitive electronics of the printer circuit boards.

#### Note

Names of parts that appear in the removal and replacement procedures may not match the names that appear in the Parts List. For example, a part called the Registration Chute Assembly in a removal procedure may appear on the Parts List as Assembly, Chute REGI. When working on a removal procedure, ignore any prerequisite procedure for parts already removed.

#### Caution

Many parts are secured by plastic tabs DO NOT over Flex or force these parts. Do not over torque the screws threaded into plastic parts.

Always use the correct type and size screw. Using the wrong screw can damage tapped holes. Do not use excessive force to remove or install either a screw or a printer part.

#### Warning

Unplug the AC power cord from the wall outlet before removing any printer part.



# Notations in the disassembly text

- The notation “(item X)” points to a numbered callout in the illustration corresponding to the you disassembly procedure being performed.
- The notation “PLX.X.X” indicates that this component is listed in the FRU Parts List.
- Bold arrows in an illustration show direction of movement when removing or replacing a component.

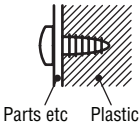
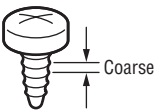
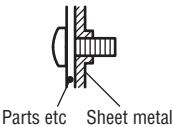
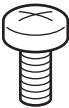
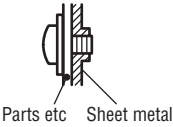

## Replacement Note

Underneath the lower output tray are three spare k-clips of various sizes. These clips are small and easy to lose. Keep them in a location near your work area in case you need them.

# Fastener Types

The following table lists the primary types of Posi-Drive screws used to assemble the printer. The procedures provide dimensional specifications for screws being removed.

## Posi-Drive Screw Types used in the Printer

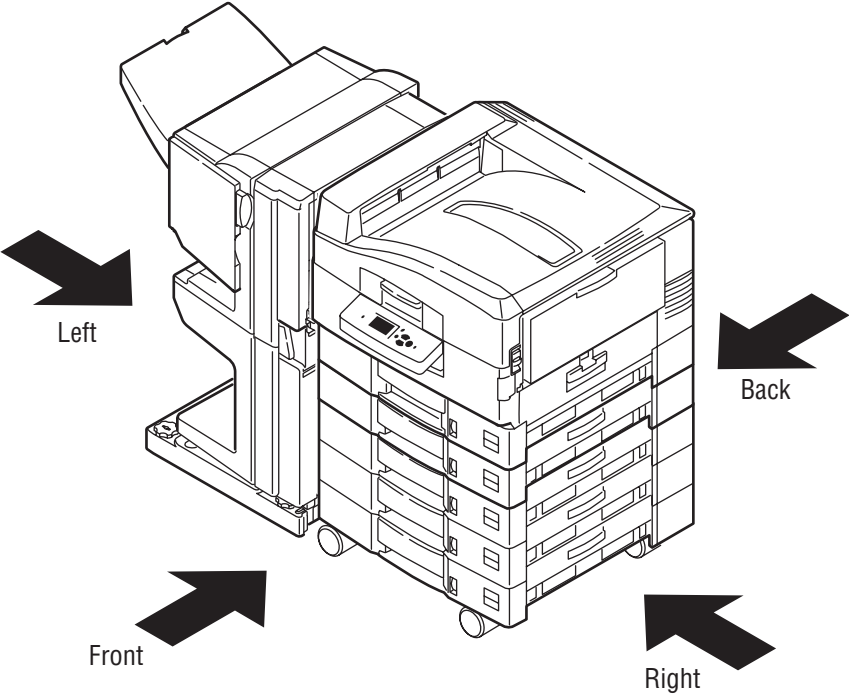
Type	Application	Shape	Characteristics
Self-tapping, plastic			<ol style="list-style-type: none"><li>1. Black colored</li><li>2. Screw thread is coarse compared to metal screw.</li><li>3. Screw tip is thin.</li></ol>
Sheet Metal, silver			<ol style="list-style-type: none"><li>1. Silver colored</li><li>2. Diameter is uniform.</li><li>3. Typically 6 mm in length</li></ol>
Sheet Metal, with flange			<ol style="list-style-type: none"><li>1. Silver colored</li><li>2. It has a flange.</li><li>3. Diameter is uniform.</li></ol>

## Caution

Use care when installing self-tapping screws in plastic. To properly start the screw in plastic, turn the screw counter-clockwise in the hole until you feel the screw engage the threads, and then tighten as usual. Failure to properly align or over tighten the screw can result in damage to previously tapped threads.

# Standard Orientation

When needed the orientation of the option is called out in the procedure for locating parts, refer to the orientation graphic for locating the right, left, front and back sides of the printer.



s7400-339

# Finisher Disassembly

The Finisher disassembly is presented in the following categories:

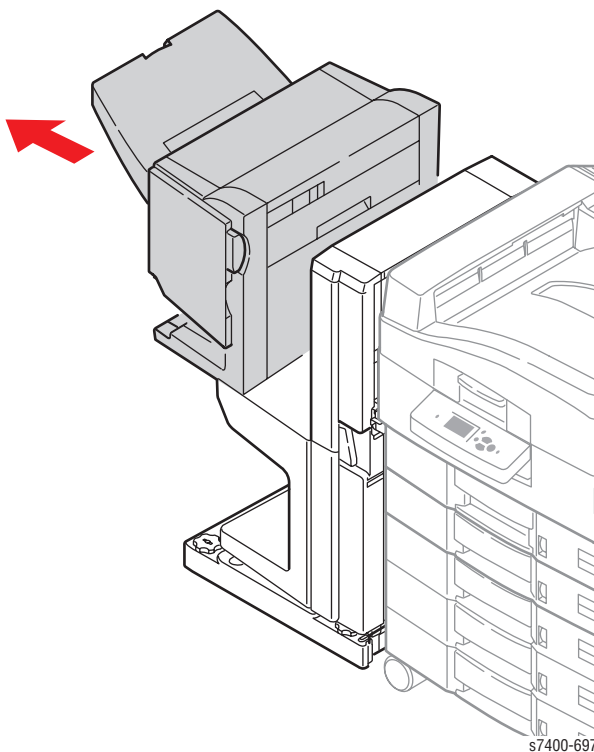
- Base Unit and Inverter
- Tray and Covers
- Subassemblies
- Field Replaceable Units

## Removing Inverter Base Unit from Finisher

1. Release the hook attaching the Finisher to the Base Unit.
2. Remove the two screws (metal, 6 mm) securing the Base Unit to the Finisher.
3. Lift the Finisher from the four slots on the Base Unit.

### Caution

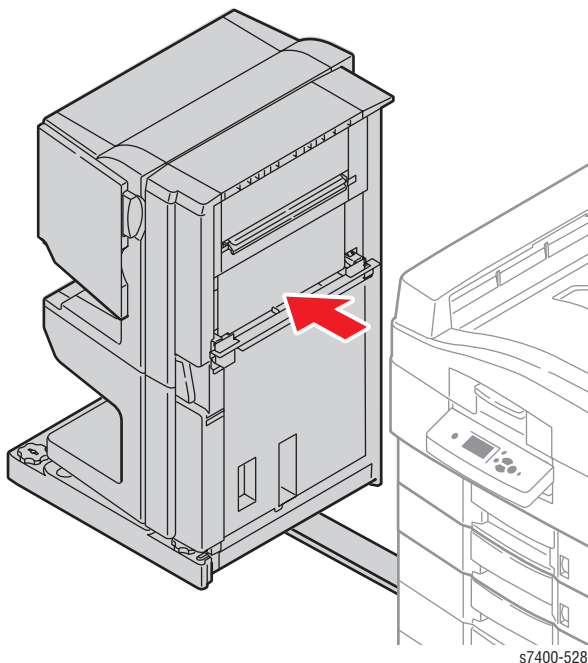
Use two people to lift the Finisher from the Base Unit.



s7400-697

## Undocking Inverter from Printer

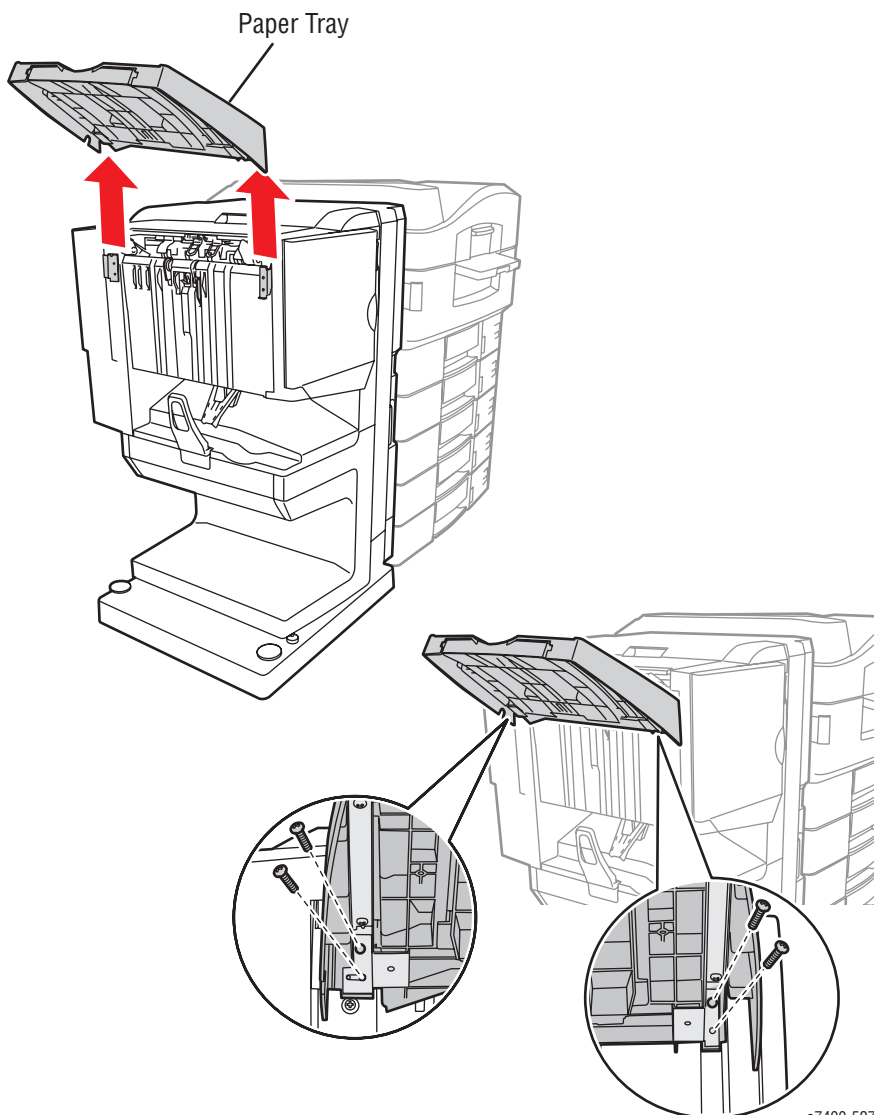
1. Slide out the bar on the bottom of the Finisher Base Unit.
2. Remove two screws (metal, 6 mm) holding the Inverter to the printer.
3. Remove guide pins.
4. Slide Inverter away from the printer.



# Trays and Covers

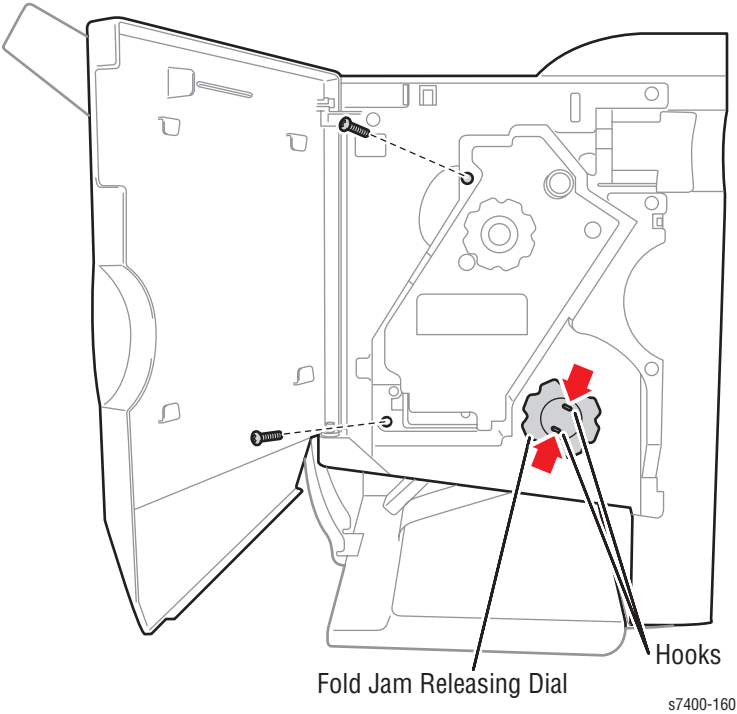
## Paper Exit Tray

1. Remove four screws (metal, 6 mm) and detach the Paper Exit Tray.



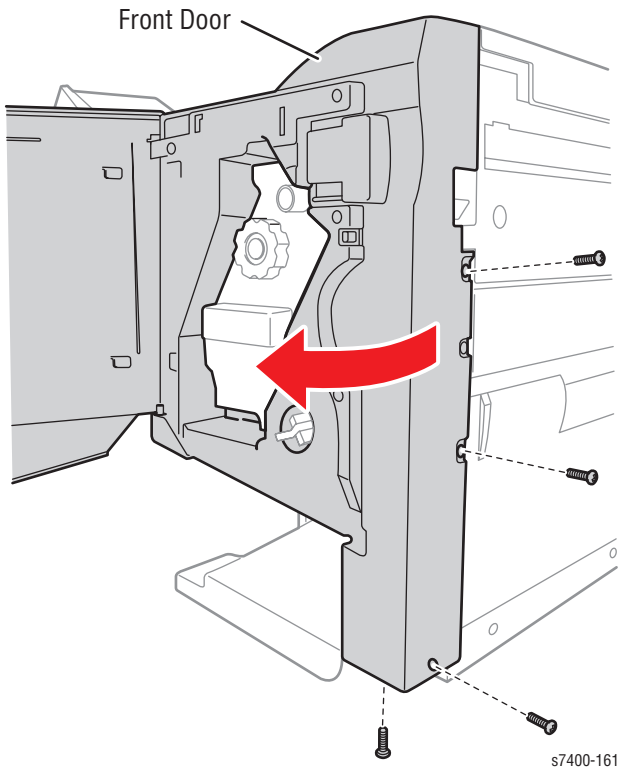
# Front Door (Door J)

- 1. Open the Front Door.
- 2. Remove two screws (metal, 6 mm).
- 3. While squeezing the plastic hooks, remove the fold jam release knob.



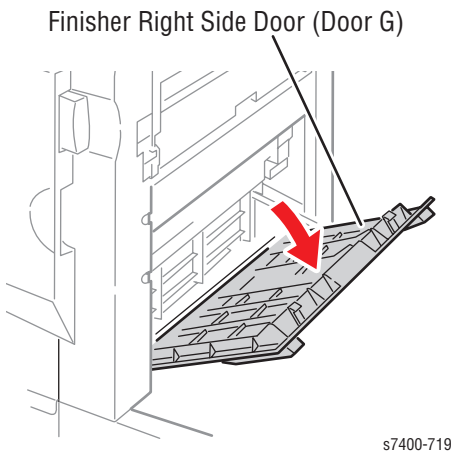
- 4. Press the release latch and slide the finisher away from the Finisher Base Unit.

5. To detach the Front Door, remove four screws (metal, 6 mm), pull the right side of the cover away from the Finisher, and then slide the cover to the left (moving the guide tab out of the slot on the cover).



# Right Side Door (Door G)

For diagnostic purposes, you may be instructed to open or close the Right Side Door on the Finisher. The illustration below identifies the location of the Right Side Door (Door G).

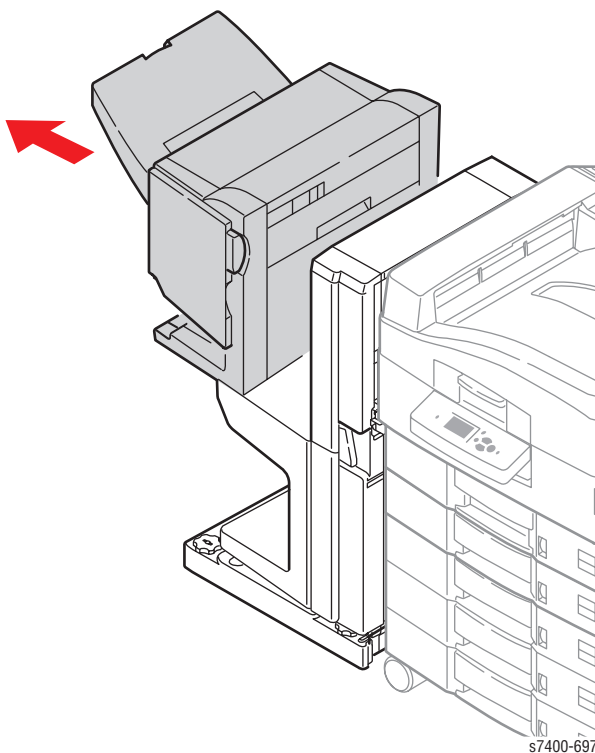


s7400-719

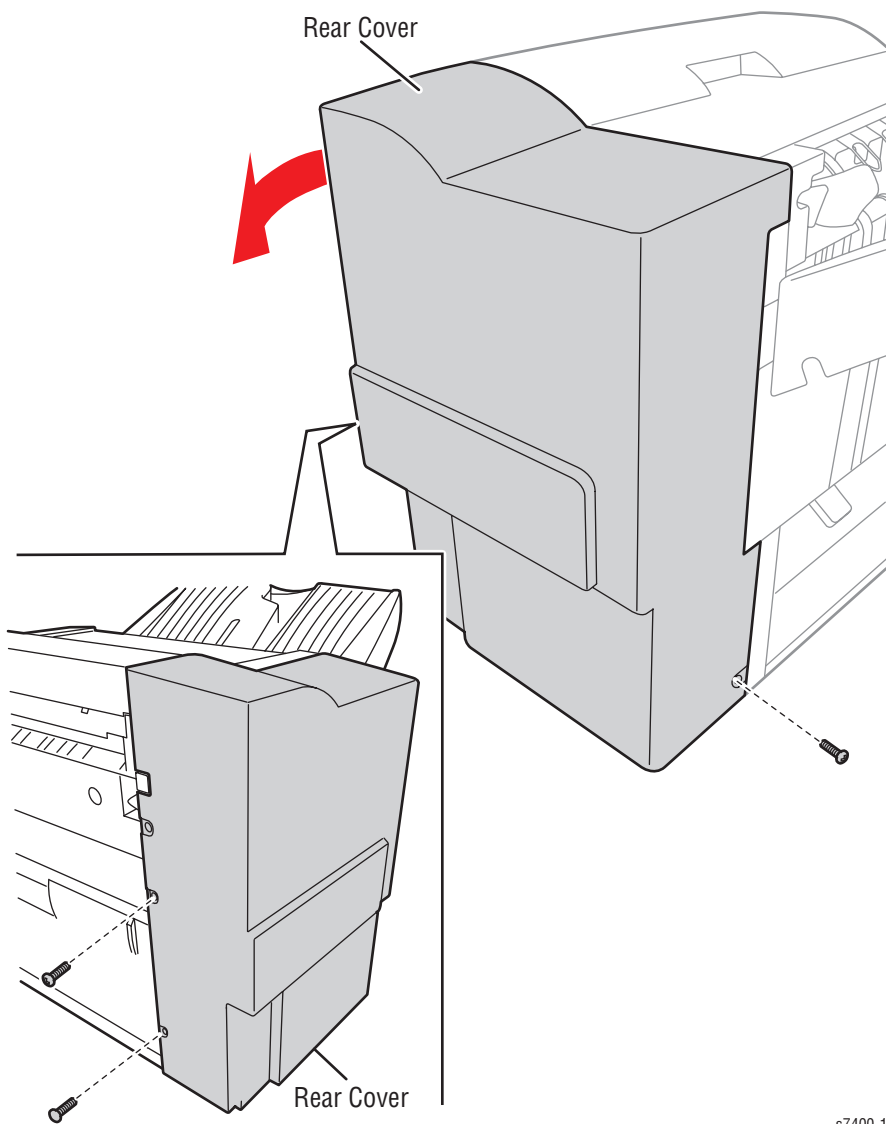


## Rear Cover

1. Remove the Paper Exit Tray (page 5-7).
2. Press the release latch and slide the Finisher away from the base.
3. Detach the cable from the Finisher to the Inverter (at the rear of the Finisher).



4. Remove two screws (metal, 6 mm) on the left side of the rear cover.

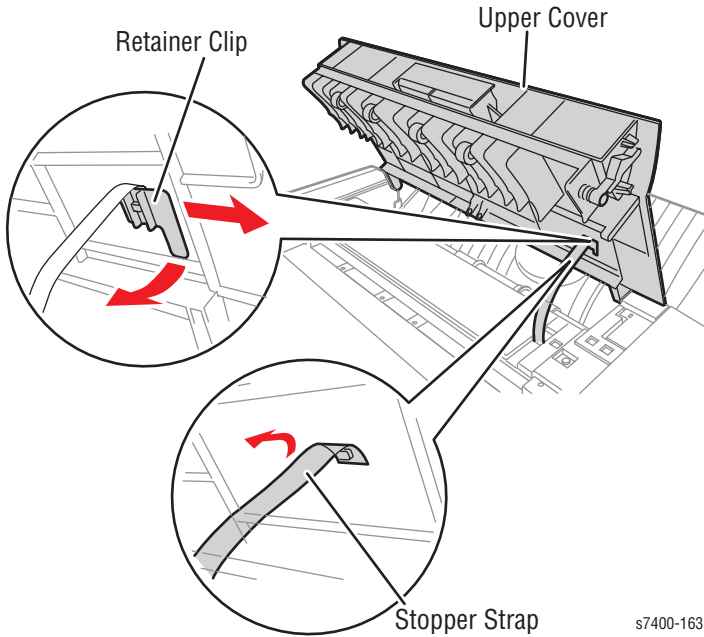


s7400-162

5. Remove one screw (metal, 6 mm) on the right side of the rear cover.  
6. Slide the Rear Cover towards the right side of the Finisher and remove.

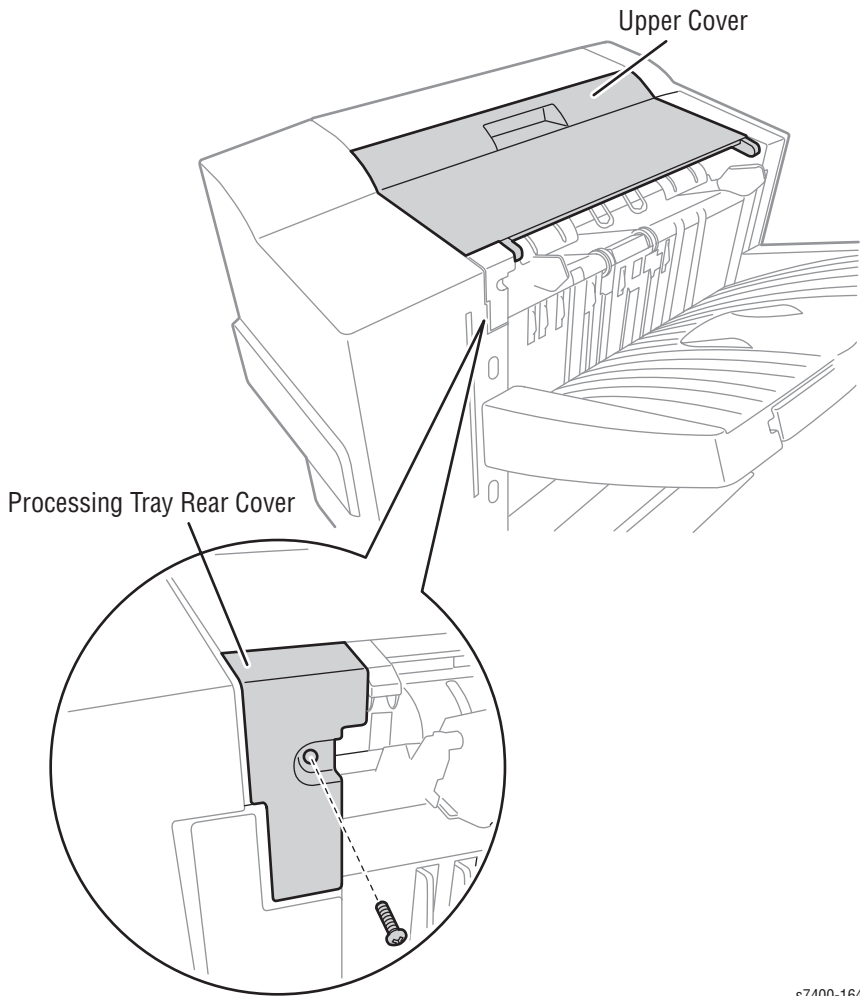
## Upper Cover (Door H)

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Open the Upper Cover and turn the stopper strap retainer clip counter-clockwise, then remove the strap from the cover.



4. Remove the screw (metal, 6 mm) and detach the Processing Tray Rear Cover.

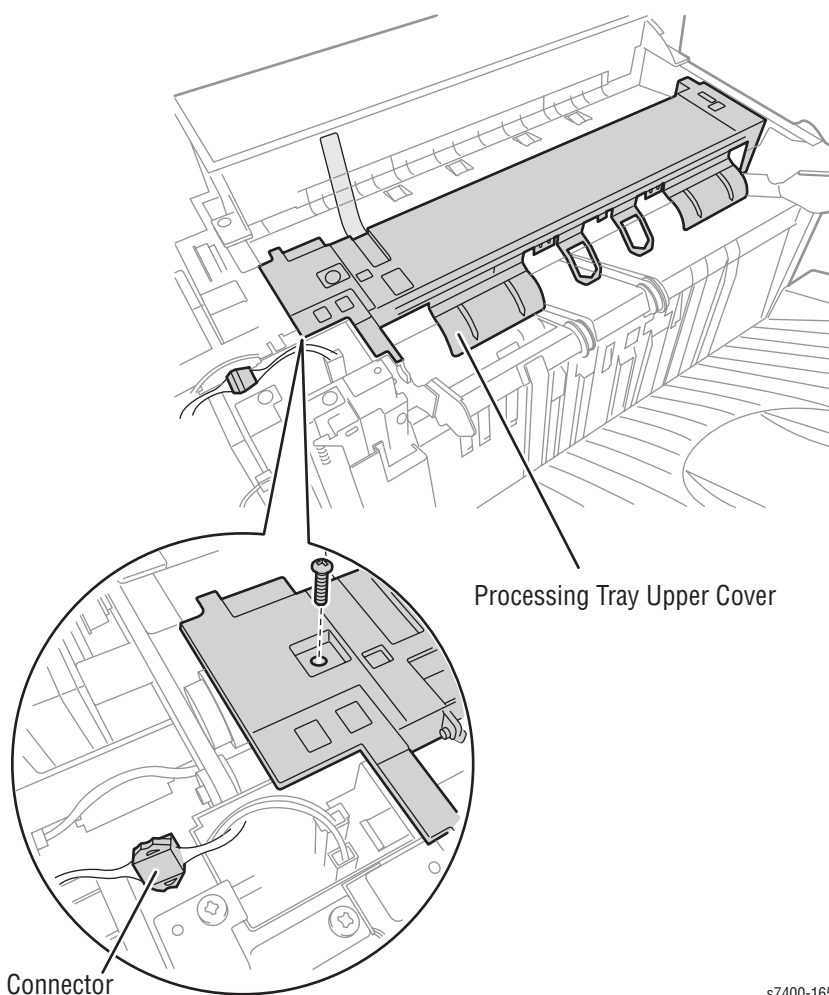
5. Detach the Upper Cover.



s7400-164

## Processing Tray Upper Cover

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover. (page 5-13).
4. Disconnect the top end of the cable from the connector and free the cable from the harness.
5. Remove the single screw (metal, 6 mm) holding the tray to the chassis.

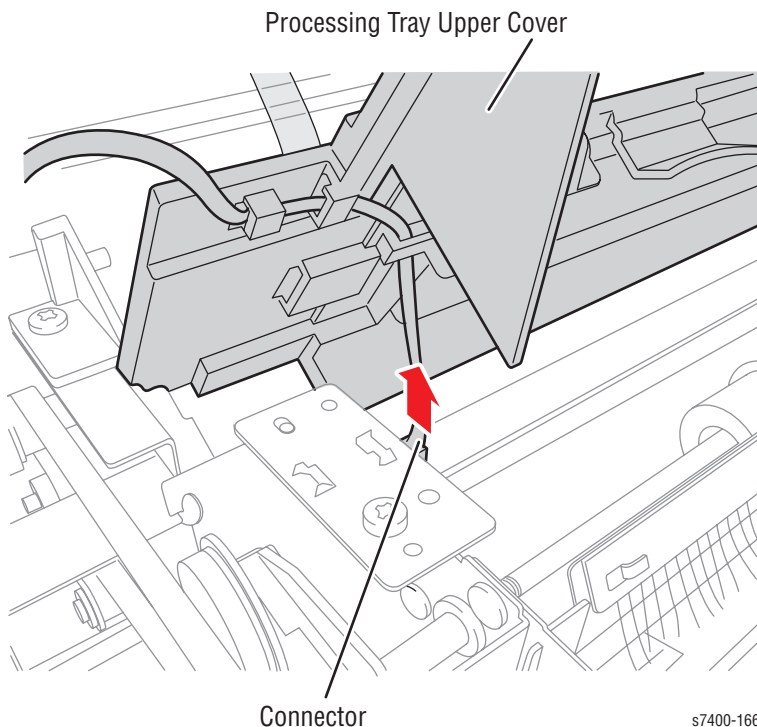


s7400-165

6. While lifting the Processing Tray Upper Cover, disconnect the other end of the cable from the connector underneath the tray.

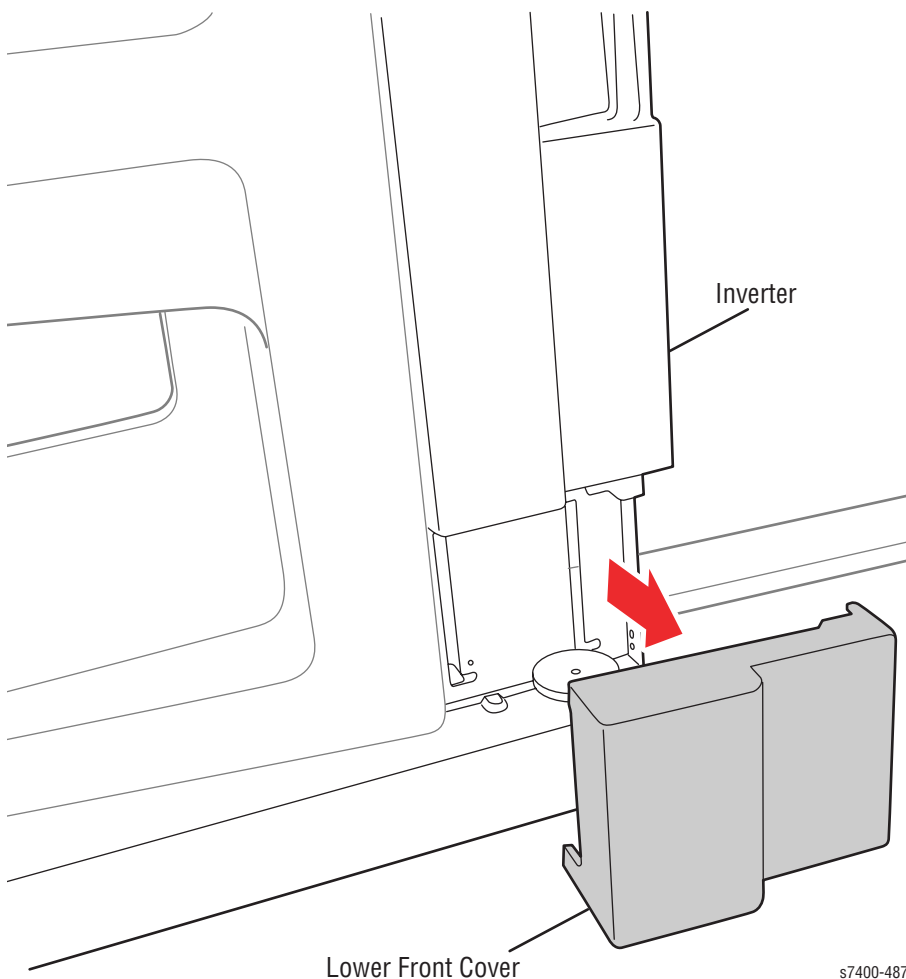
### Replacement Note

When replacing or reconnecting the connector, be sure the connection is firm and secure. Otherwise, you will receive a Paddle Motor error.



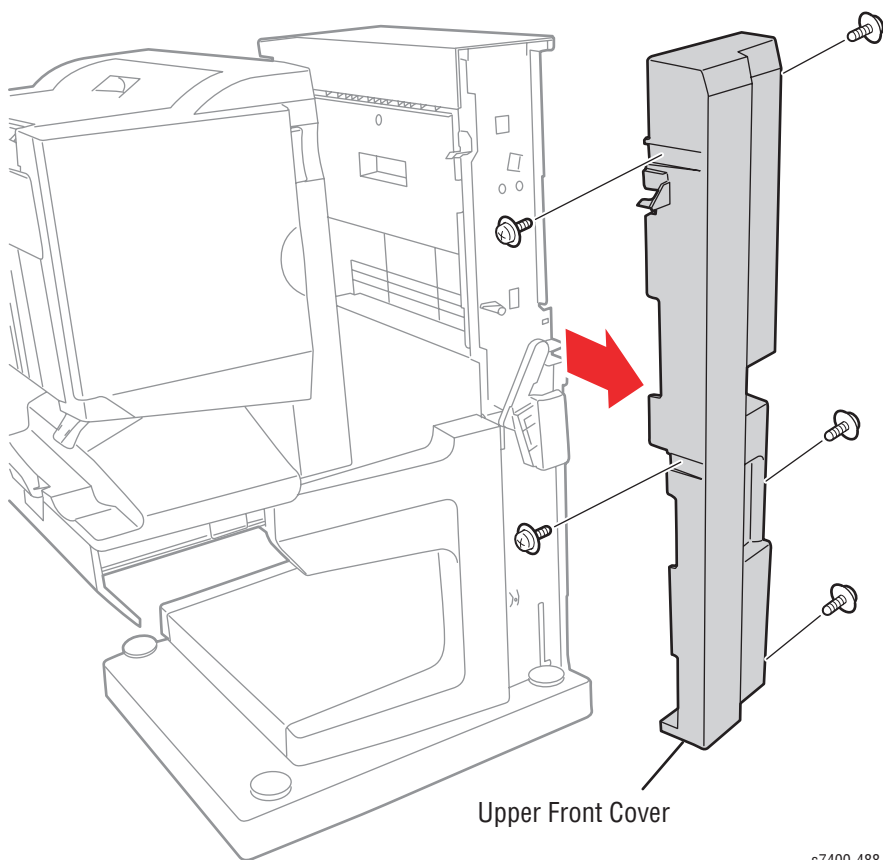
## Inverter Front Covers

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Press the release latch and slide the Finisher away from the printer.
3. Remove two screws (metal flange, 10 mm) holding the Lower Front Cover to the chassis.
4. Remove the Lower Front Cover.



s7400-487

5. Remove two screws (metal flange, 10 mm) from the left side and two screws from the right side of the Upper Front Cover.
6. Remove one screw (metal flange, 10 mm) from the bottom of the Upper Front Cover.
7. Carefully move the Finisher release latch out of the slot and remove the Upper Front Cover.

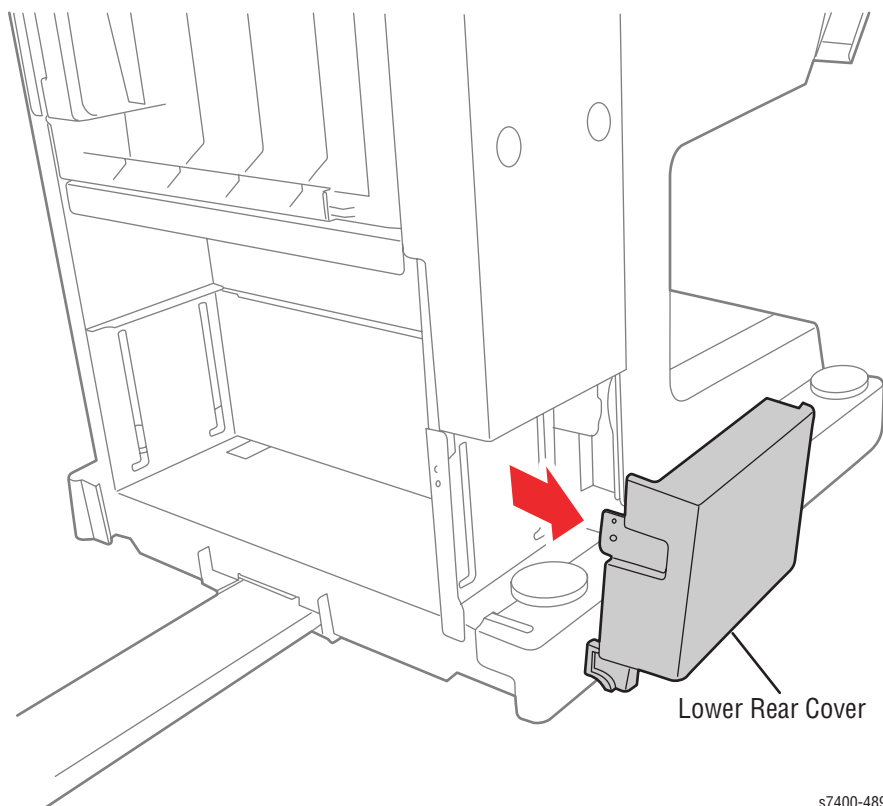


s7400-488



## Inverter Rear Covers

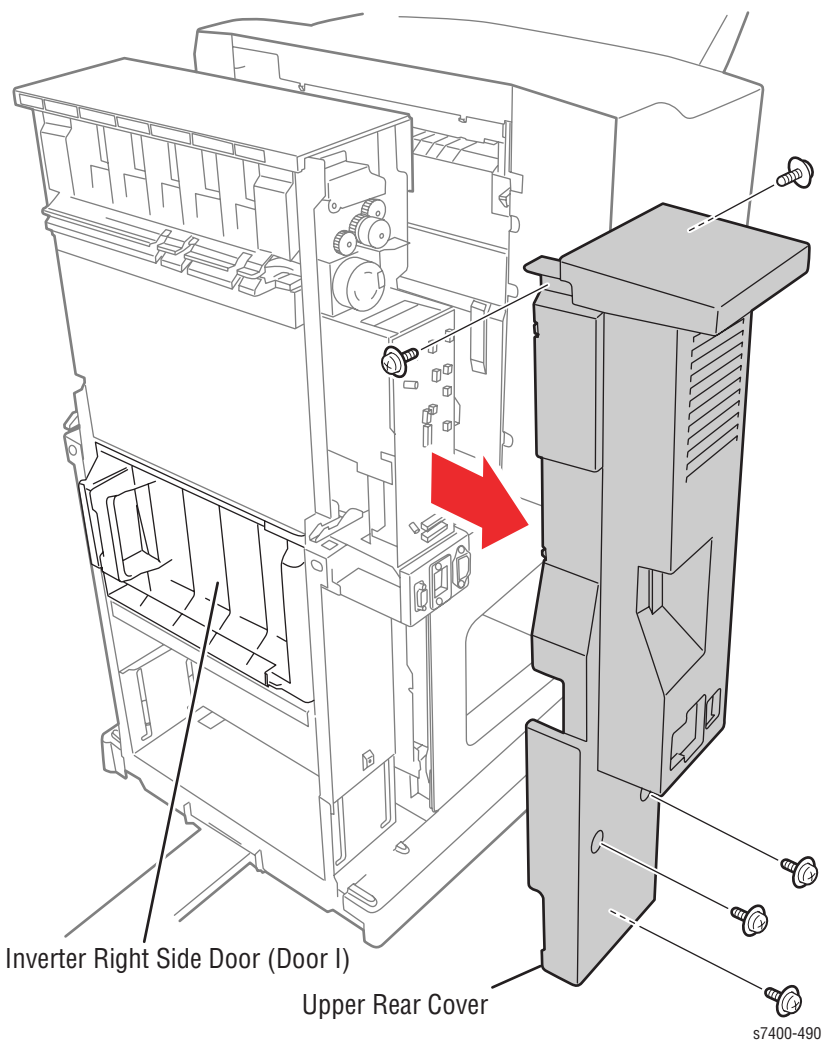
1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Press the release latch and slide the Finisher away from the printer.
3. Remove two screws (metal flange, 10 mm) holding the Lower Rear Cover to the chassis.
4. Remove the Lower Rear Cover.



s7400-489

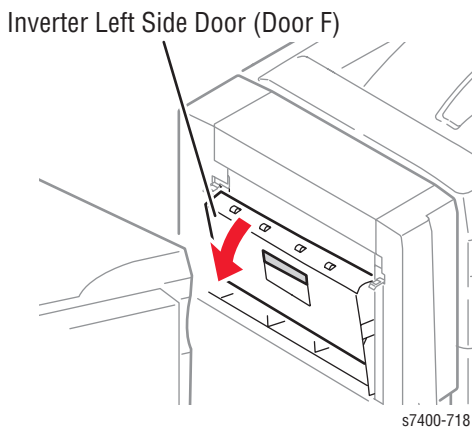
5. Remove one screw (metal flange, 10 mm) from the left side and one screw from the right side of the Upper Rear Cover.
6. Remove two inset screws (metal flange, 10 mm) near the bottom of the Upper Rear Cover.
7. Remove one screw (metal flange, 10 mm) from the bottom of the Upper Rear Cover.

- 8. Release the cover from the four tabs holding the cover to the frame.
- 9. Pull the cover away from the frame. This will expose the boards, motors, and clutch units.



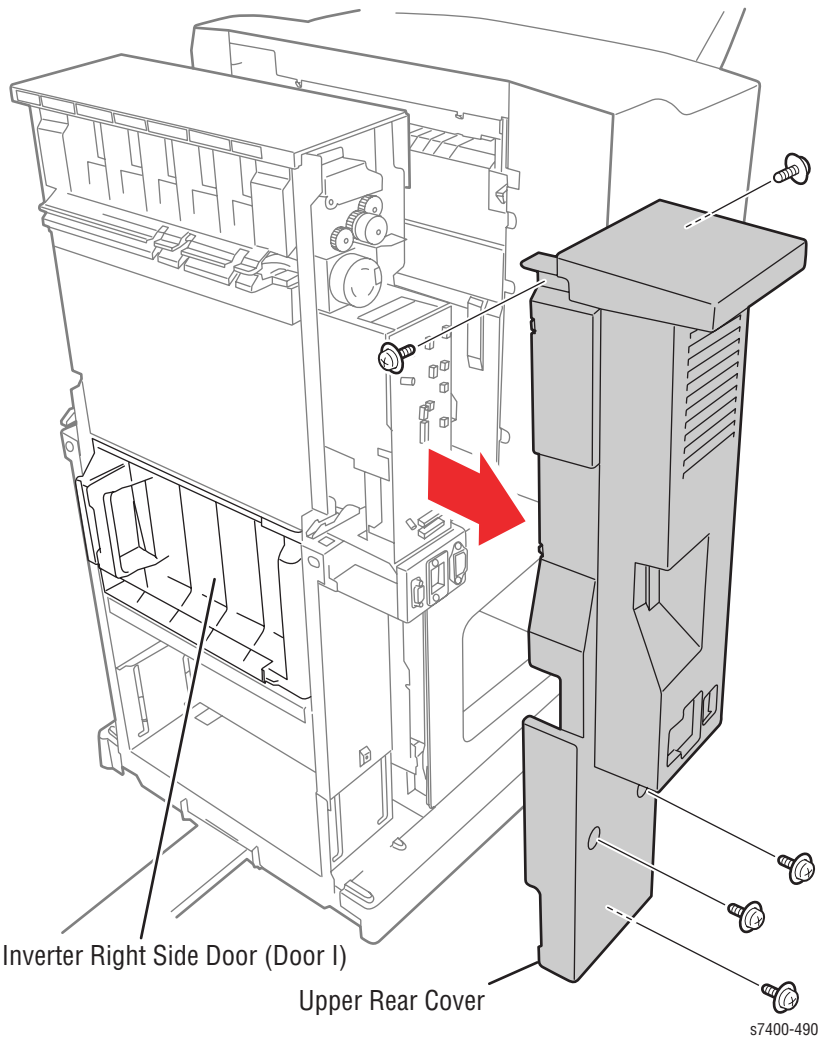
## Inverter Left Side Door (Door F)

For diagnostic purposes, you may be instructed to open or close the Left Side Door on the Inverter. The illustration below identifies the location of the Inverter Left Side Door (Door F).



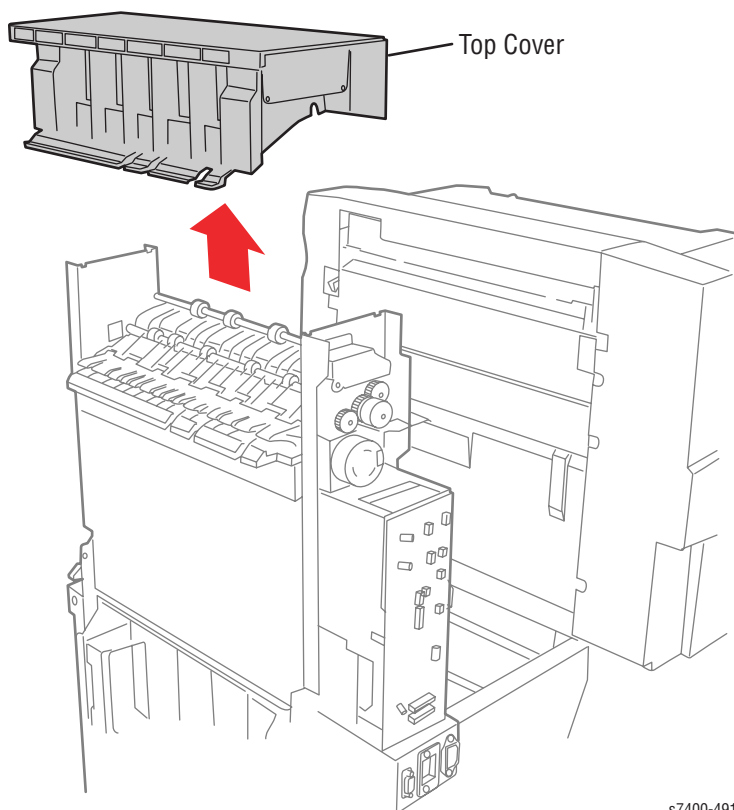
# Inverter Right Side Door (Door I)

For diagnostic purposes, you may be instructed to open or close the Right Side Door on the Inverter. The illustration below identifies the location of the Right Side Door (Door I).



## Inverter Top Cover

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Front Covers (page 5-17).
3. Remove the Inverter Rear Covers (page 5-19).
4. Remove two black screws (self-tapping, 6 mm) on each side of the cover.
5. Lift the cover up and away from the chassis.

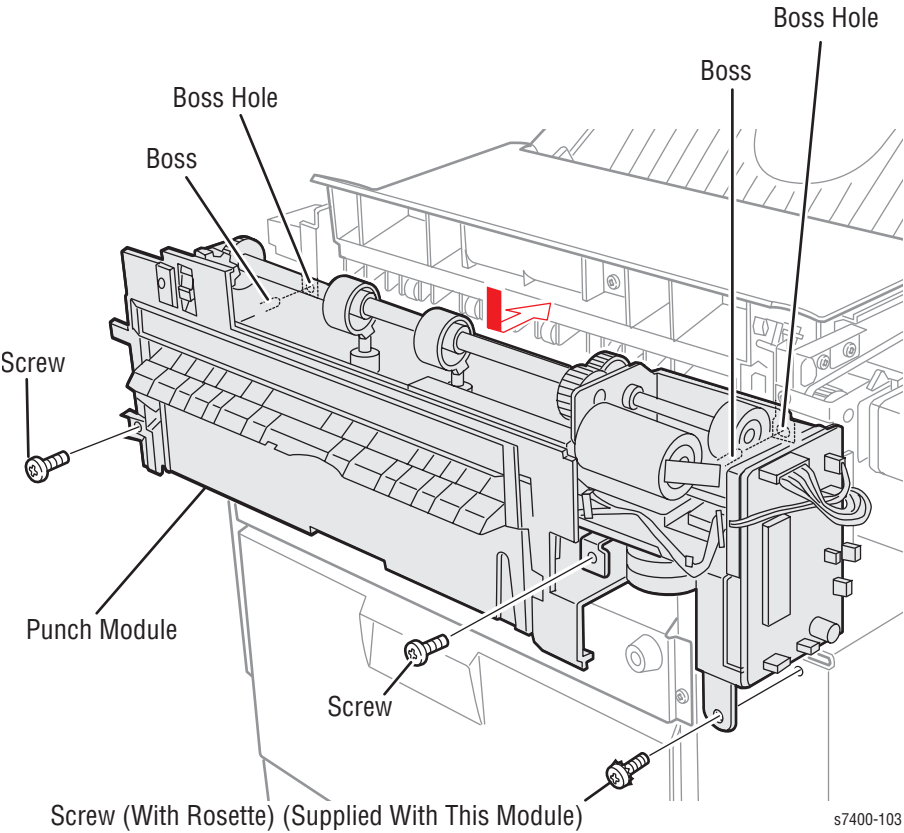


s7400-491

# Units

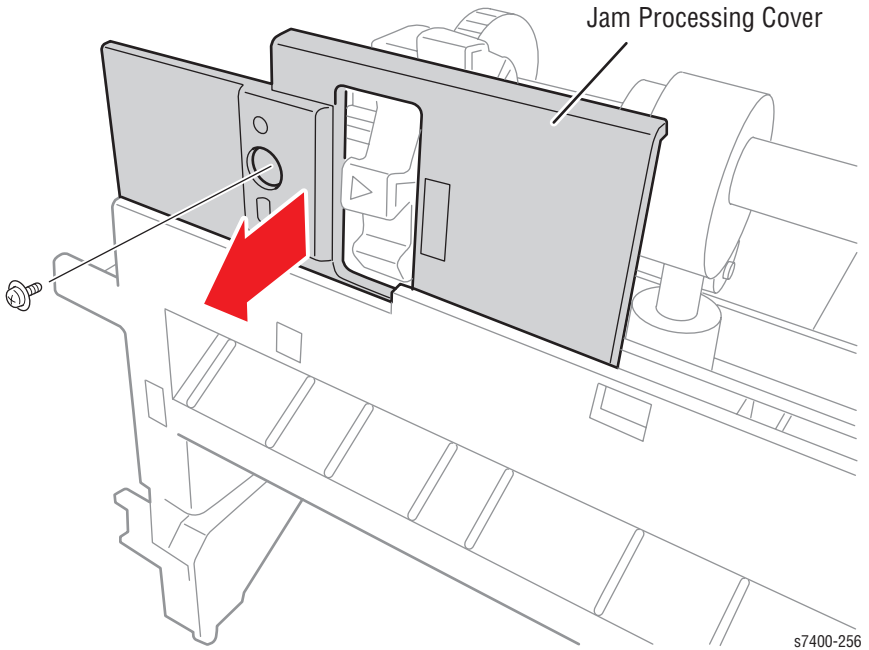
## Punch Unit

The steps in this procedure show you how to remove the Punch Unit.

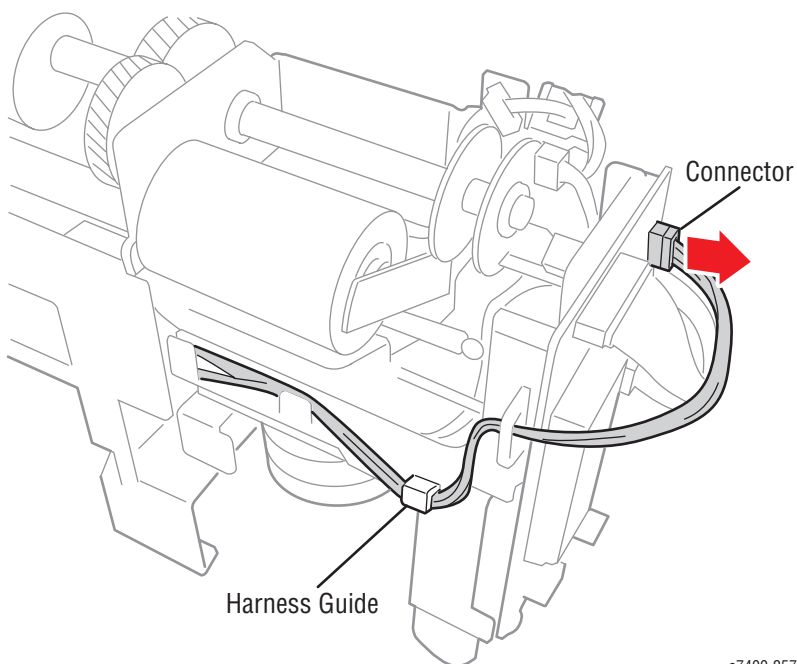


1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Waste Case Box.
5. Remove the two screws (metal, 6 mm) securing the top cover of the punch unit.

6. Remove the screw (self-tapping, plastic 10 mm) to detach the Jam Processing Cover.

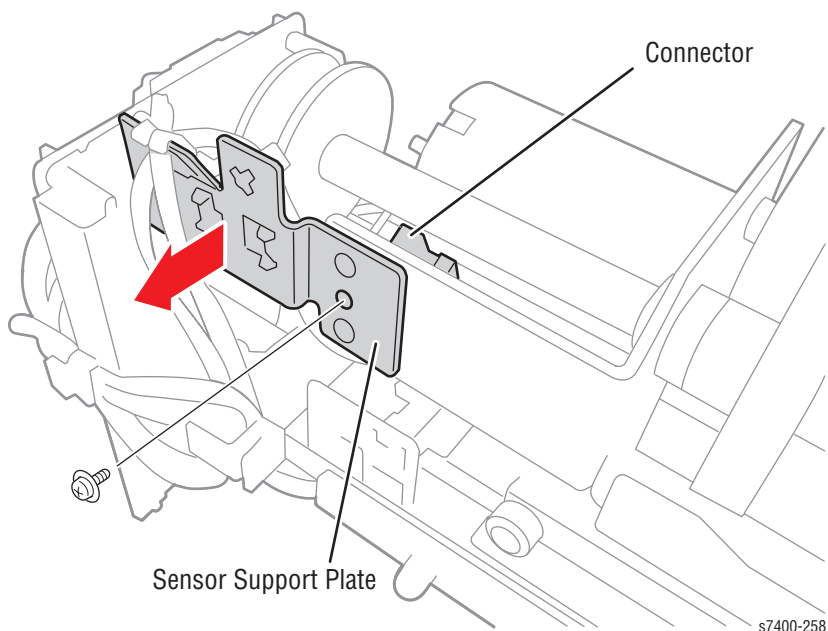


7. Disconnect the connector, and remove the harness from the harness guide.



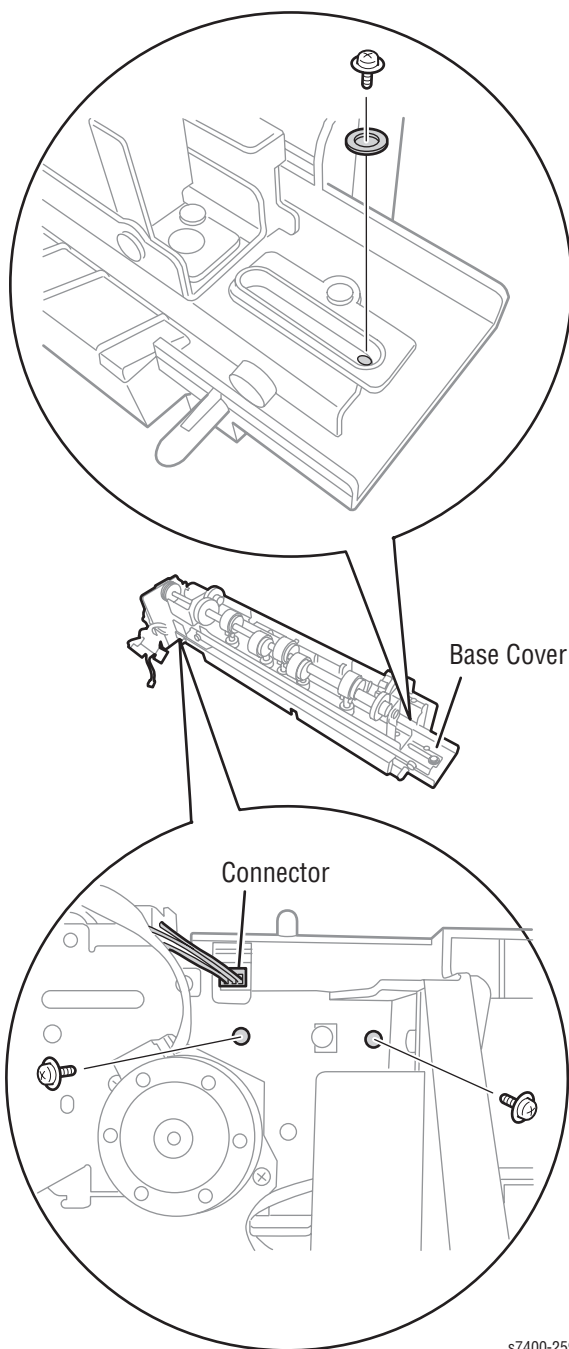
8. Remove the screw (metal flange, 6 mm) and Sensor Support Plate.

9. From the left side view, disconnect the sensor connector.



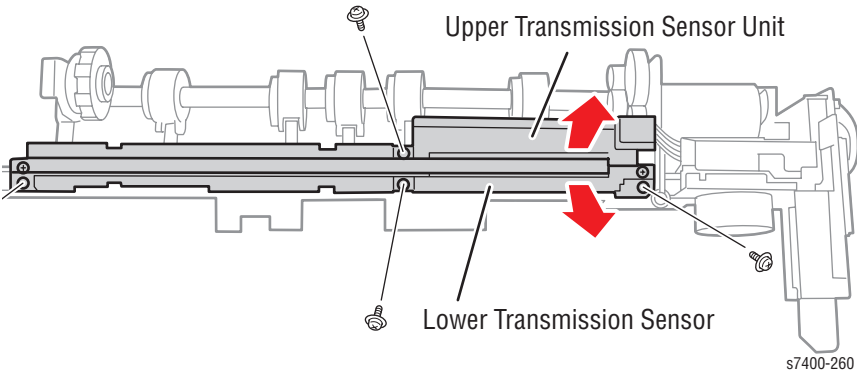


10. Remove one screw (metal flange, 6 mm) and washer.
11. Disconnect the connector (from the underside of the unit) and then the assembly. Remove the two screws (self-tapping, plastic 10 mm) to detach the base cover.

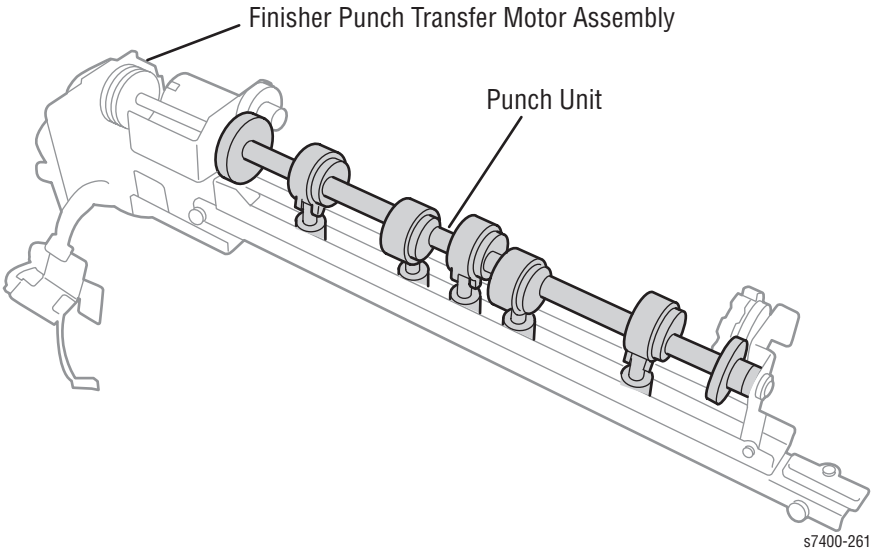


s7400-259

- 12.** Remove the three screws (metal flange, 6 mm) to remove the Upper Transmission Sensor Unit and the Lower Transmission Sensor.



- 13.** Remove the Punch Unit from the Finisher Punch Transfer Motor assembly.

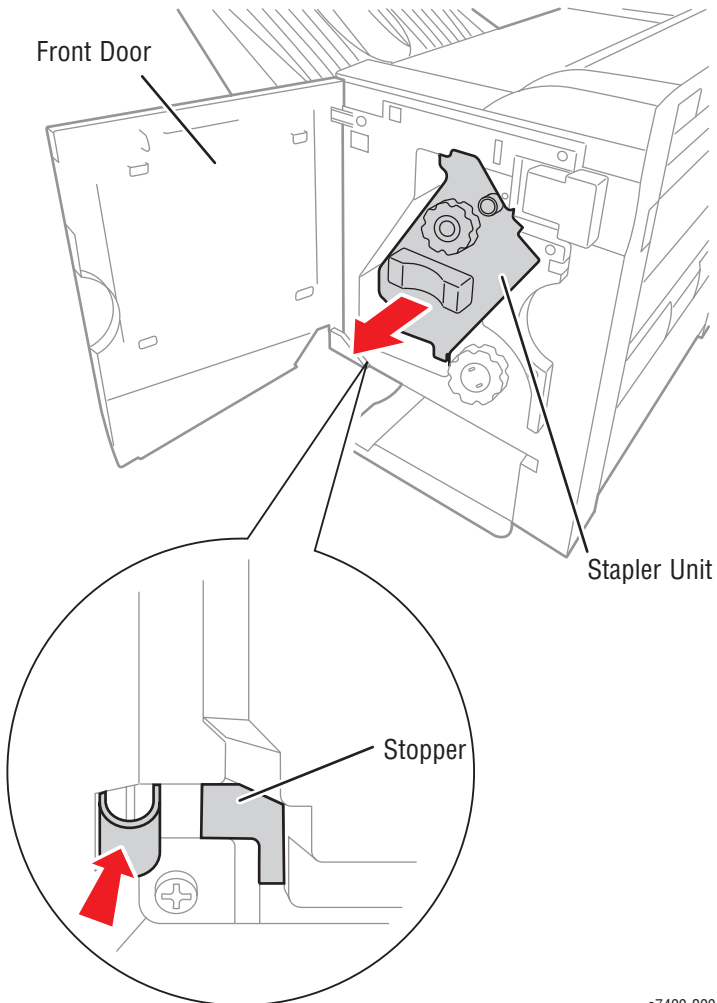


# Staple Unit

1. Open the Front Door to gain access to the Staple Unit.
2. Slide out the Staple Unit while pressing the stopper.

## Note

Do not remove the Stapler Frame Shaft. If removed, the position where the staple driver (lower unit of the stapler) inserts the staple through the paper will shift from the position where the staple clincher (upper unit of the stapler) clinches staples.



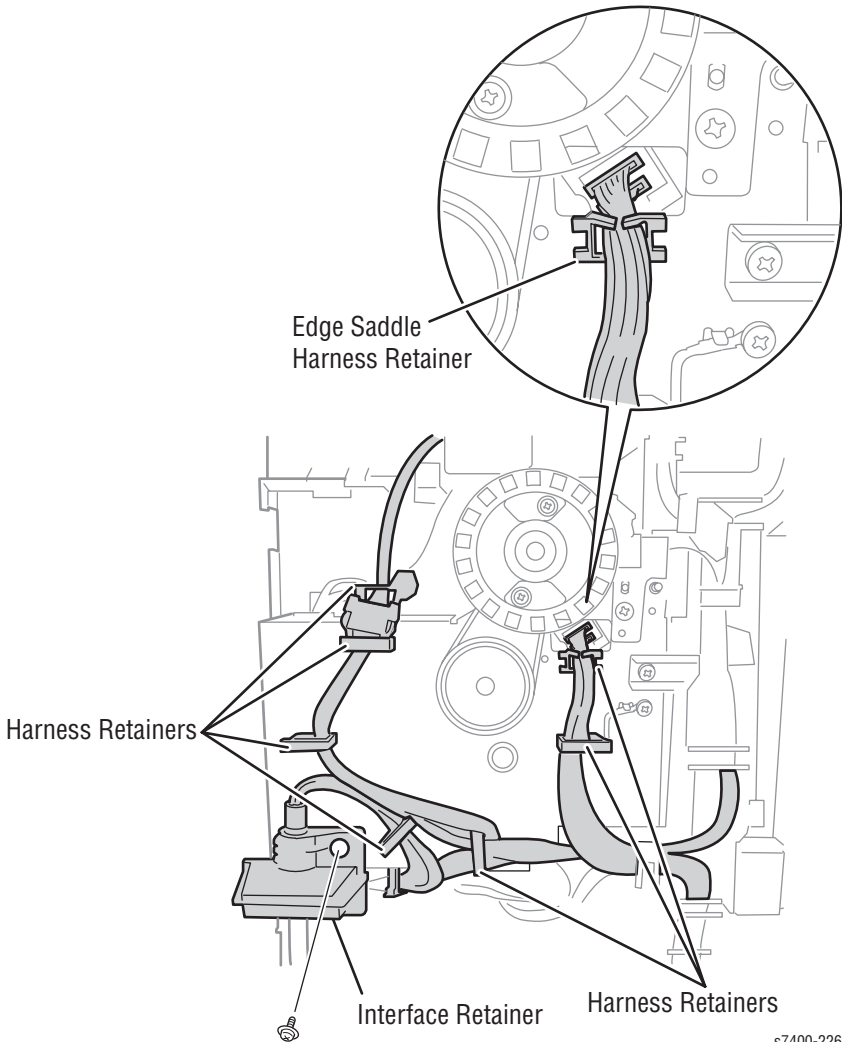
s7400-200

# Staple/Fold Drive Unit

## Note

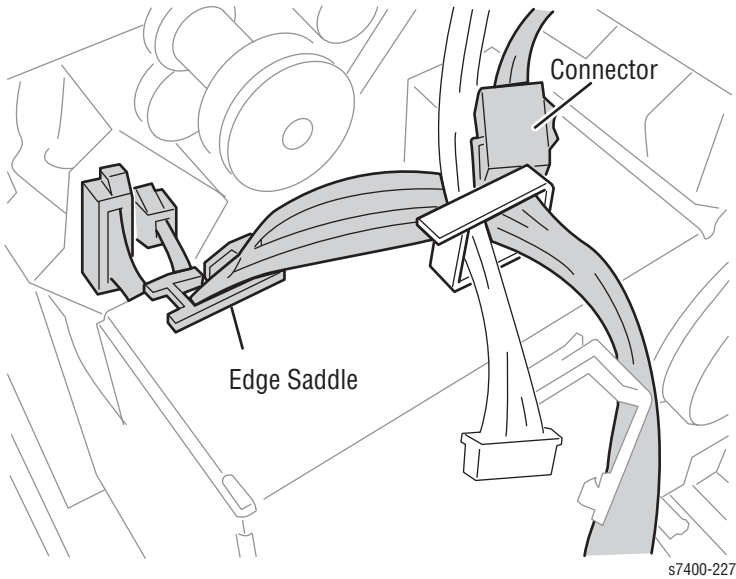
The references indicate the connector on the Finisher Controller Board.

1. Remove the Front Door (page 5-8) and slide out the Stapler Unit to the front.
2. Remove the Rear Cover (page 5-11).
3. Remove the screw (metal flange, 6 mm) and detach the Interface Retainer.
4. Free the seven harness retainers, and disconnect the cable to connector CN18.
5. Free the harness from the harness retainer and the Edge Saddle, disconnect the two remaining cables to connector CN11 and CN7 and unroute from the harness.

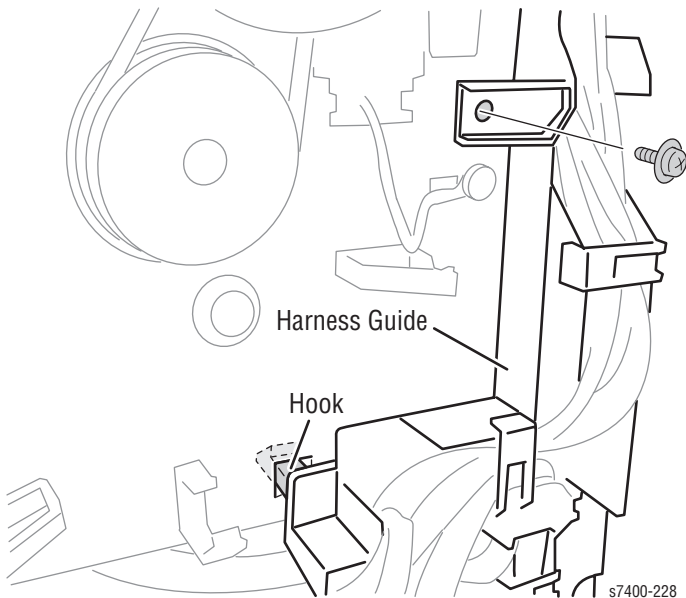


s7400-226

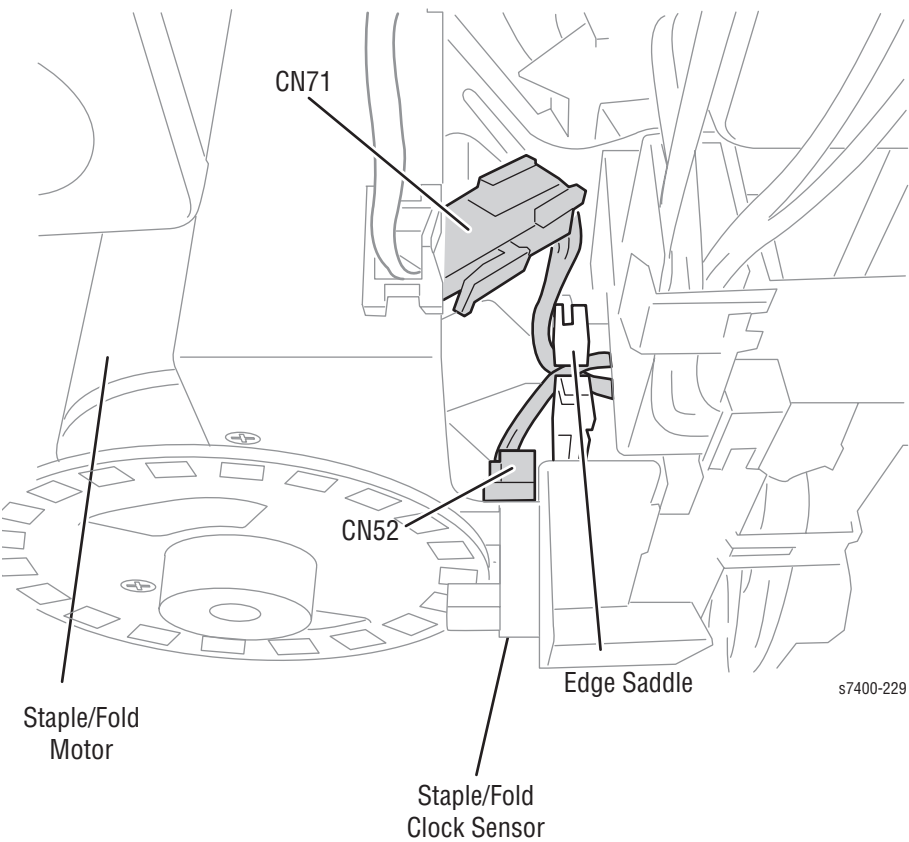
6. Disconnect the cable connector (to CN10) behind the Punch Unit.
7. Slide the Finisher away from the Inverter and then free the harness.
8. Free the harness from the Edge Saddle and disconnect the two connectors (to CN18).



9. Remove the two screws (metal flange, 6 mm), free the tab of the harness guide, and remove all connectors to clear the harness guide.

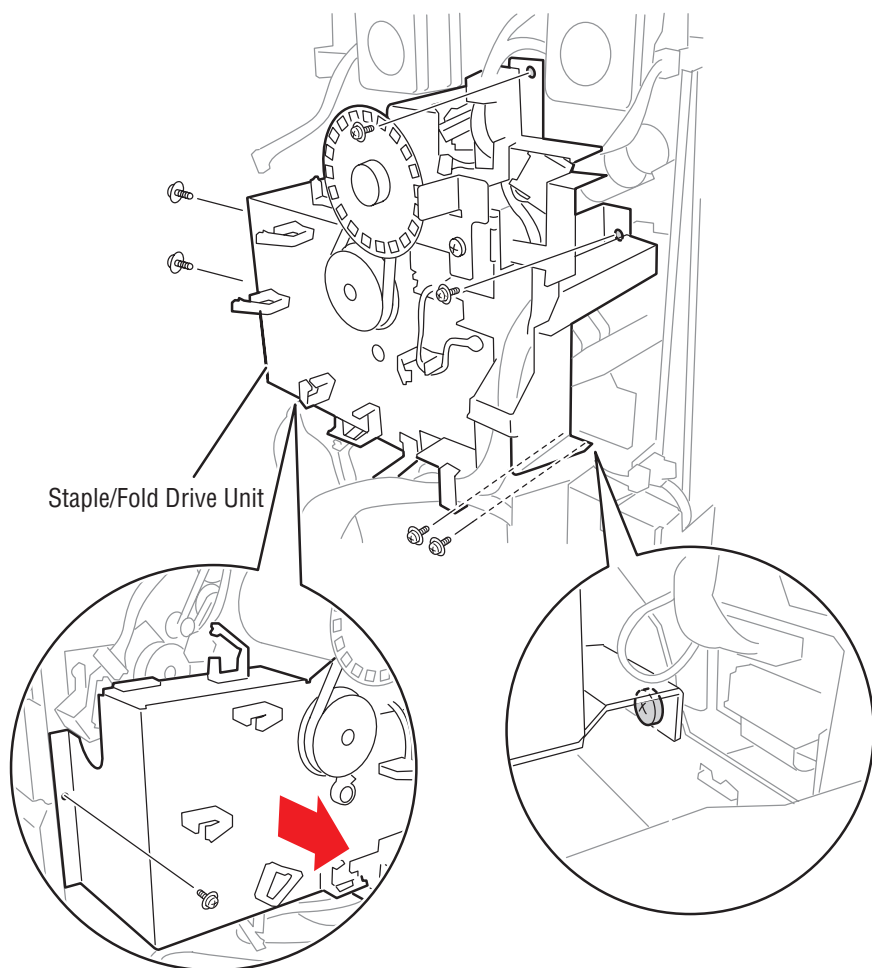


10. Disconnect the connector to CN8 and the connector to CN6, and free the harness from the Edge Saddle.



s7400-229

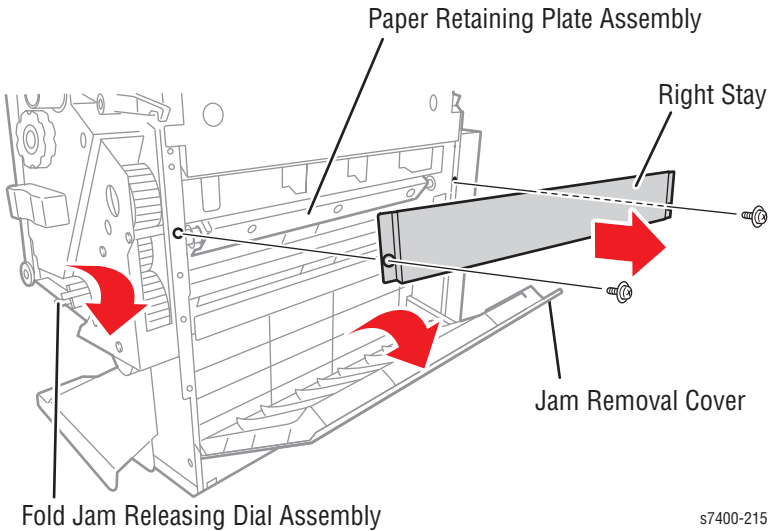
- 11.** Remove the five screws (metal, 10 mm), lift to free two hooks (one on each side, and remove the unit.



s7400-230

# Saddle Unit

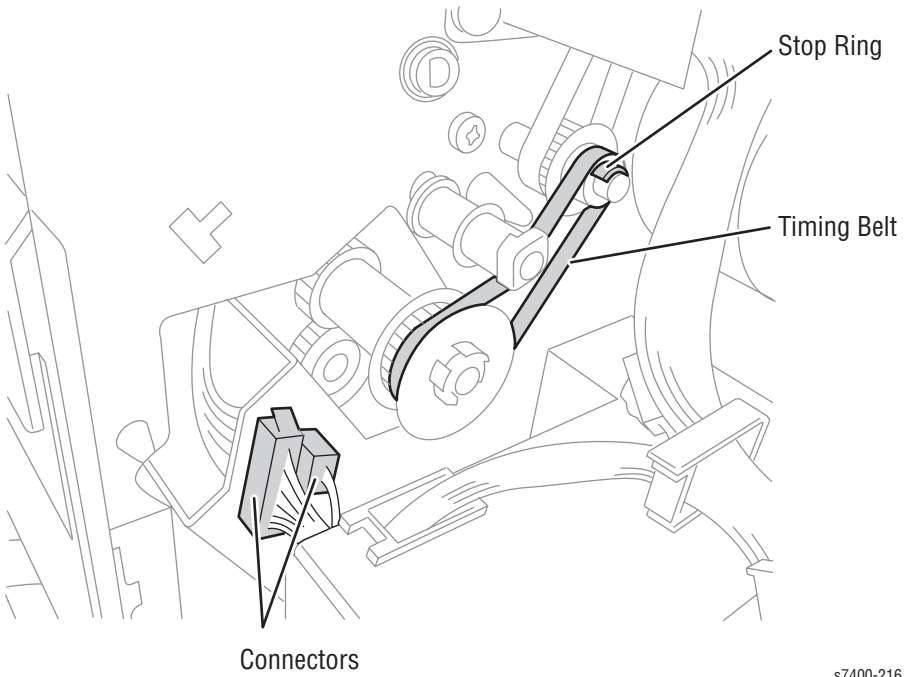
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Open the Jam Removal Cover (Door I) and remove two screws (metal, 10mm) and the right stay.
5. Turn the Fold Jam Releasing Dial Assembly to move the Paper Retaining Plate Assembly to the inside.



6. Remove the Punch Unit Assembly (page 5-24).



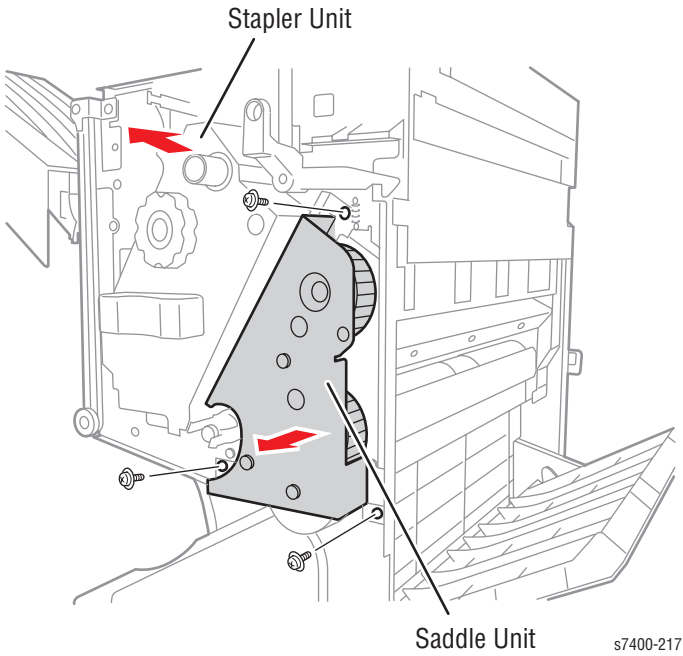
**7.** Remove the Stop Ring and detach the Timing Belt.



s7400-216

**8.** Disconnect the two connectors.

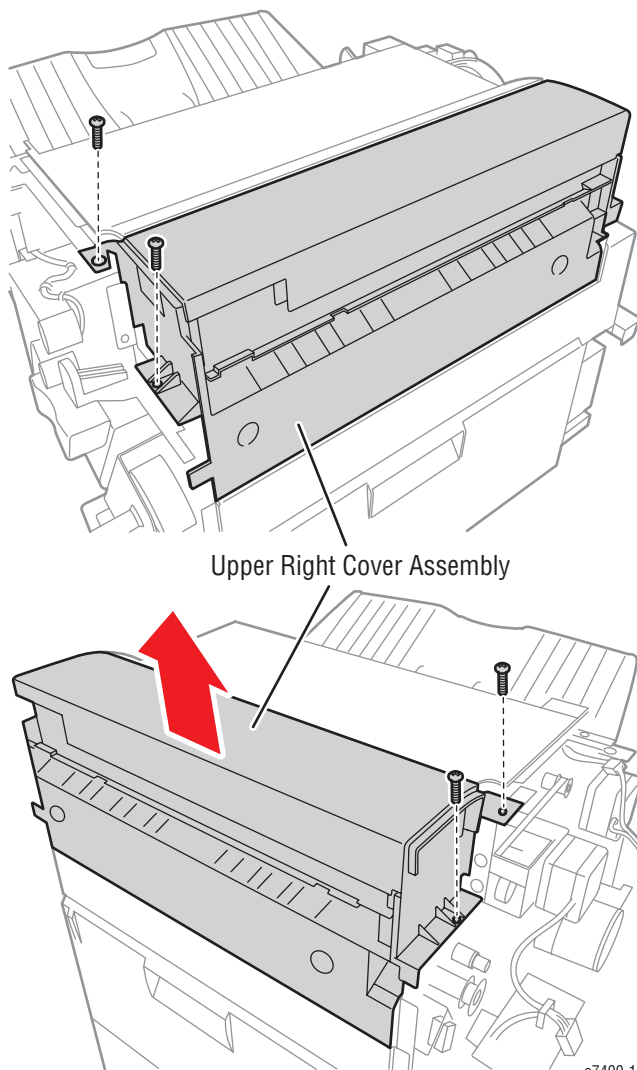
9. Remove the three screws (metal, 10mm) and slide out the Stapler Unit slightly to the front and remove the Saddle Unit.



# Assemblies

## Upper Right Cover Assembly

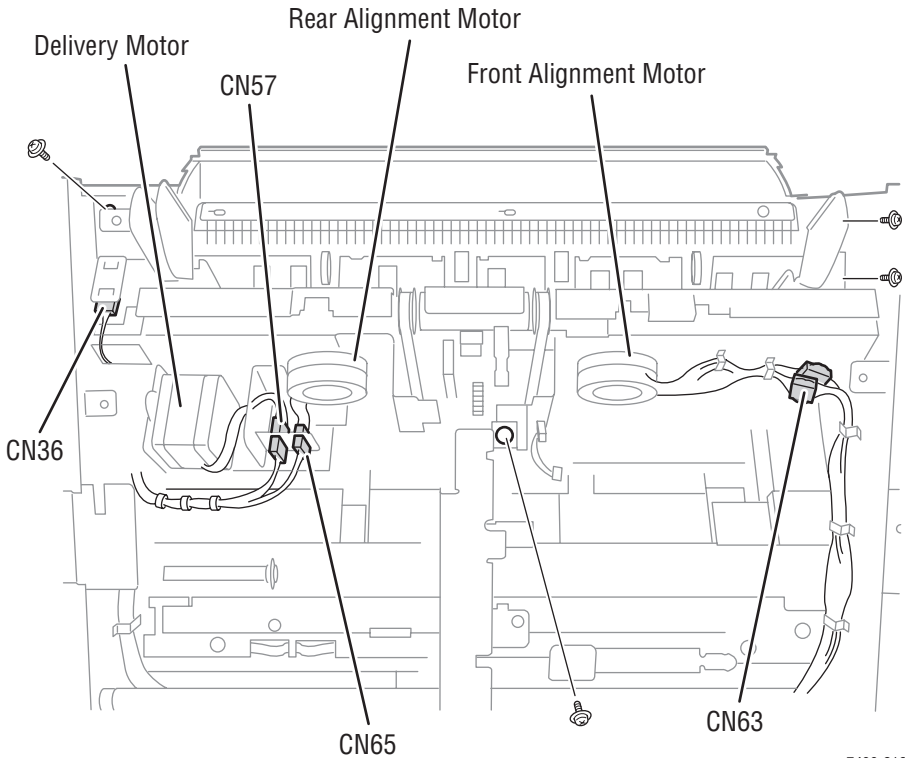
1. Remove the Front Door (page 5-8).
2. Remove the Rear Cover (page 5-11).
3. Remove two screws (metal, 6 mm) at the front and two screws at the rear of the assembly.
4. Detach the assembly and lift up to remove.



s7400-167

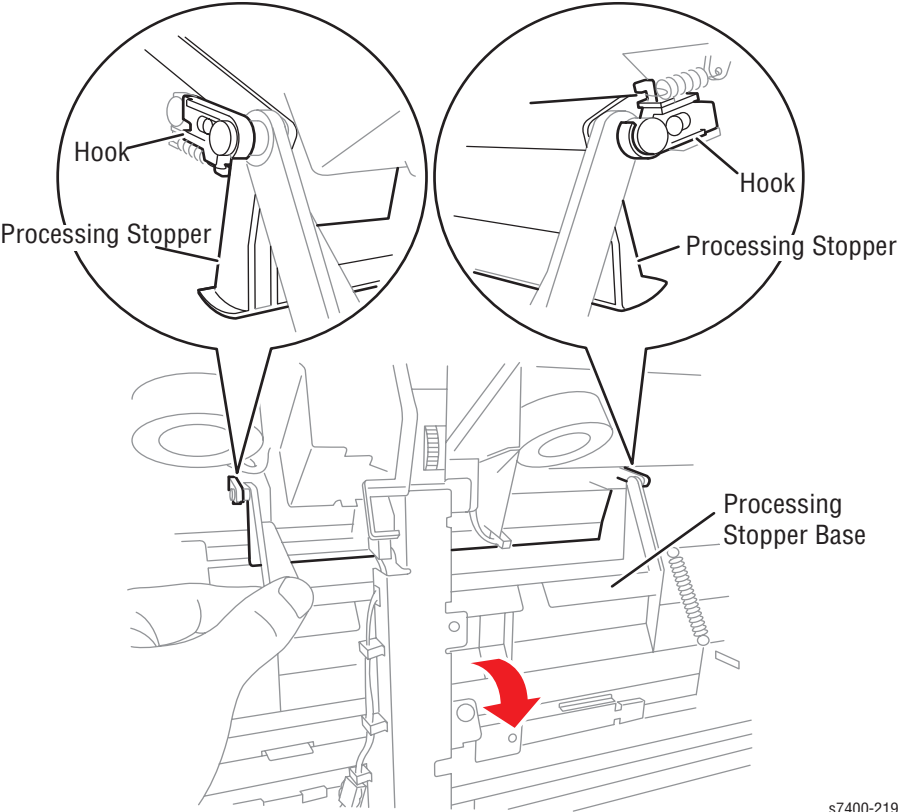
# Processing Tray Assembly

1. Remove the Processing Tray Upper Cover (page 5-15).
2. Remove the Upper Right Cover Assembly (page 5-37).
3. Remove the Side Guide (page 5-107).
4. Remove the two screws (metal, 10 mm) and disconnect the following four connectors:
  - CN36 to Clutch
  - CN85 to Rear Alignment Motor
  - CN63 to Front Alignment Motor
  - CN57 to Delivery Motor



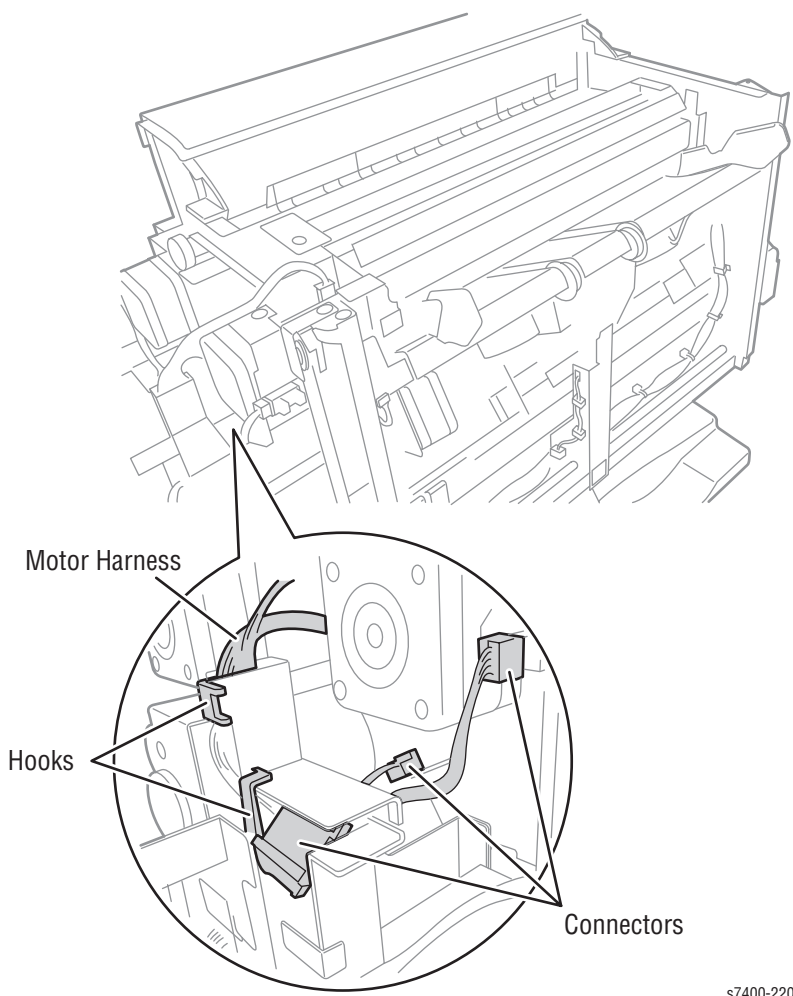
s7400-218

5. Pull the Processing Stopper Base to the front and free the hooks at the front and rear of the Processing Stopper.



s7400-219

6. Release the two hooks of the harness retainer, remove three connectors and detach the motor harness.



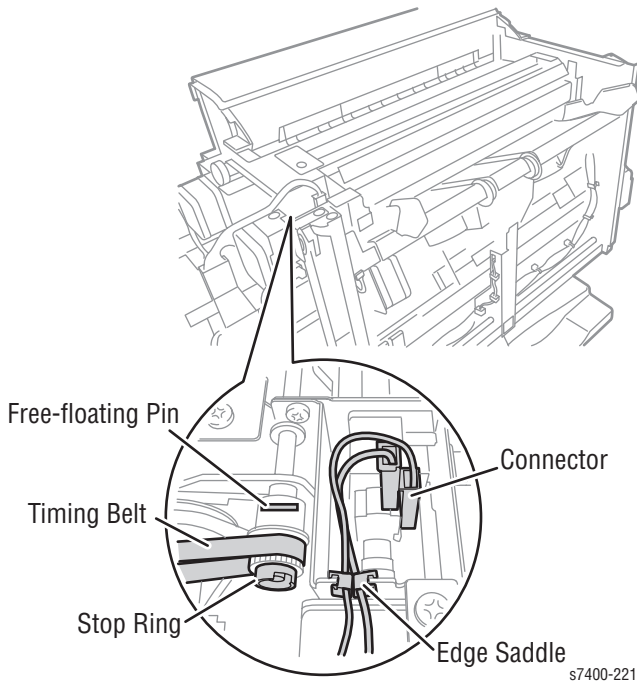
s7400-220

7. Remove the Stop Ring and detach the Timing Belt.

**Caution**

A free-floating pin is inserted in the gear shaft that can easily fall into the chassis. Be careful when loosening or removing the belt from the gear.

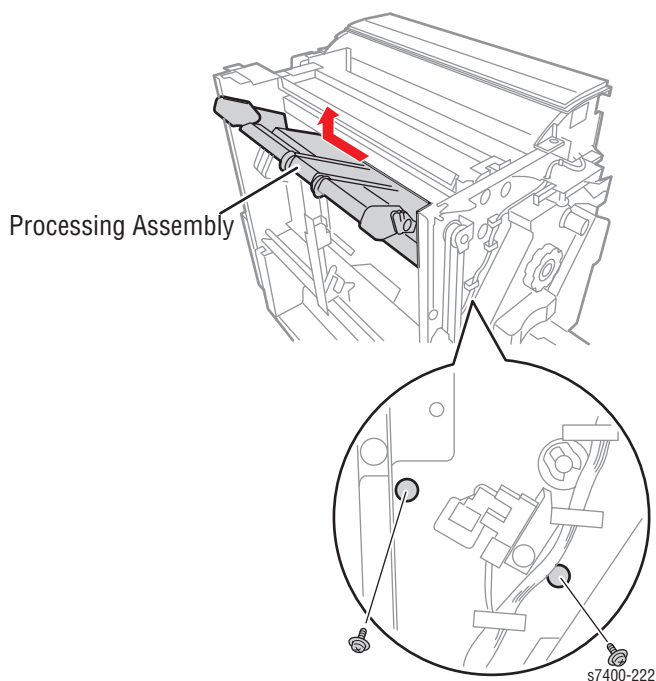
8. Disconnect the connector and free the harness from the Edge Saddle.



9. Remove the two screws (metal flange, 6 mm), slide the Processing Tray Assembly to the rear, then lift it to detach.

### Caution

Note the inset in the illustration below to find two screws on the chassis side holding the tray to the unit. You must remove these screws before you can free the unit.



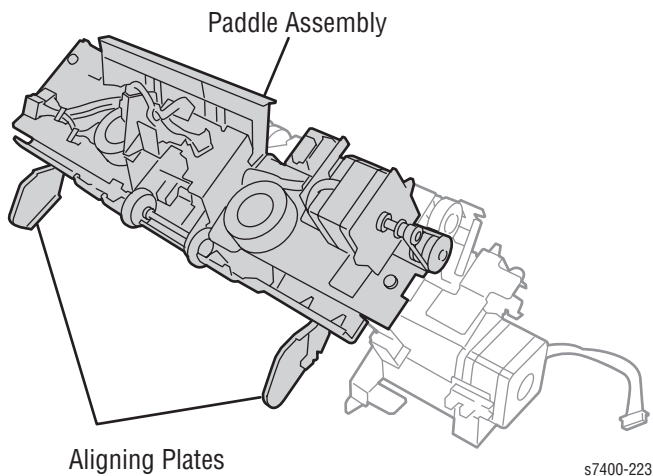


## Paddle Assembly

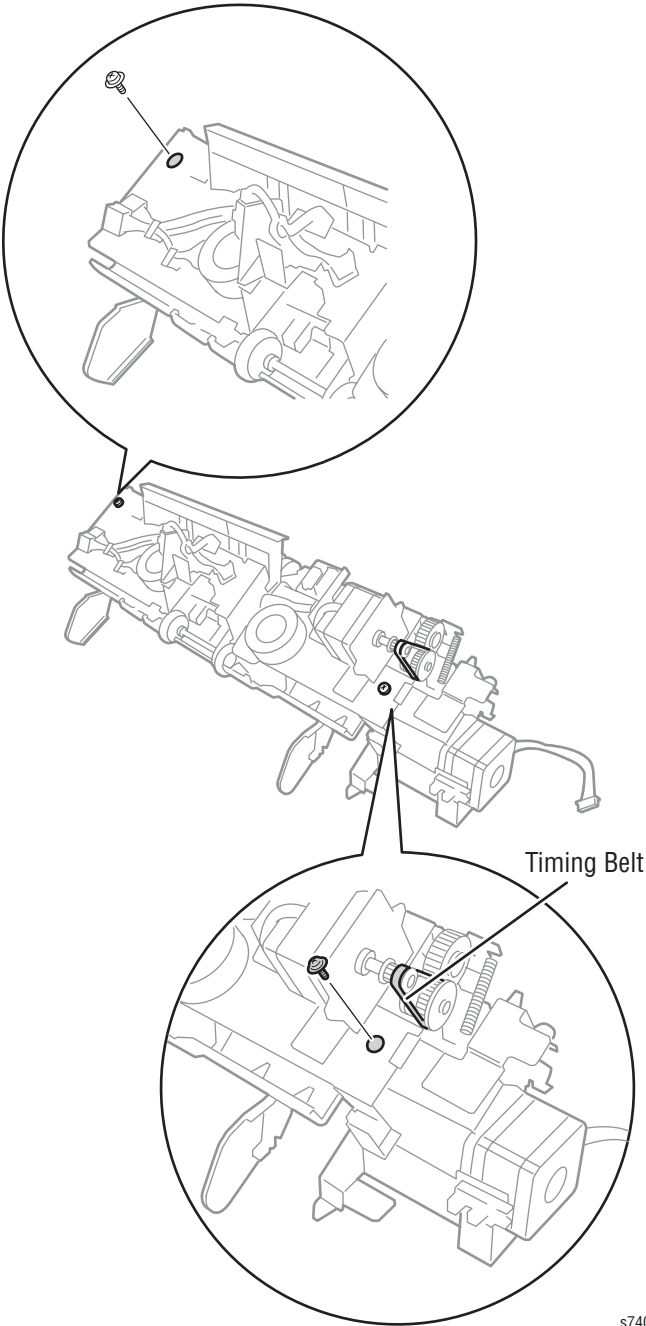
1. Remove the Processing Tray Assembly (page 5-38).
2. Place the assembly as shown.

### Caution

Be sure to take care not to damage the aligning plates.

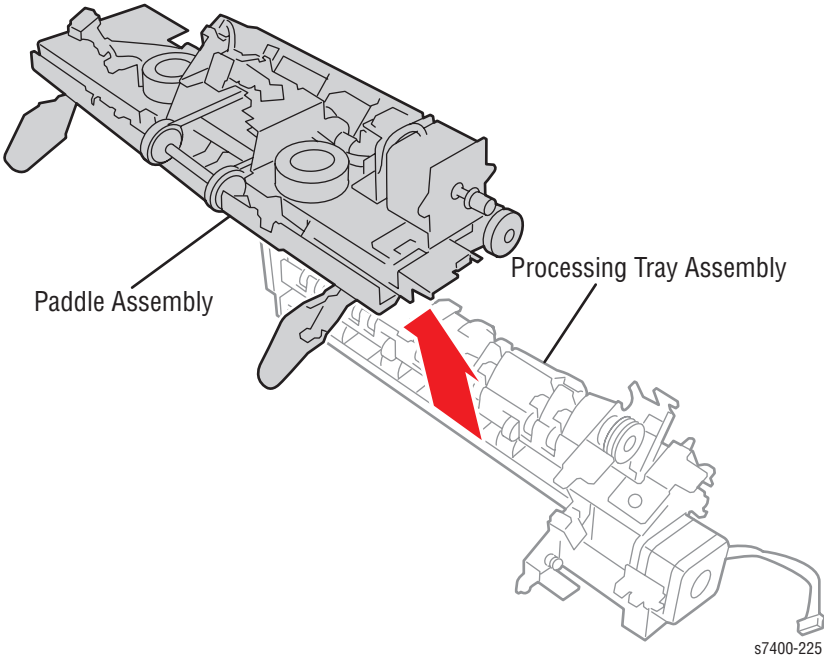


3. Detach the Timing Belt and remove the two screws (metal flange, 6 mm).



s7400-224

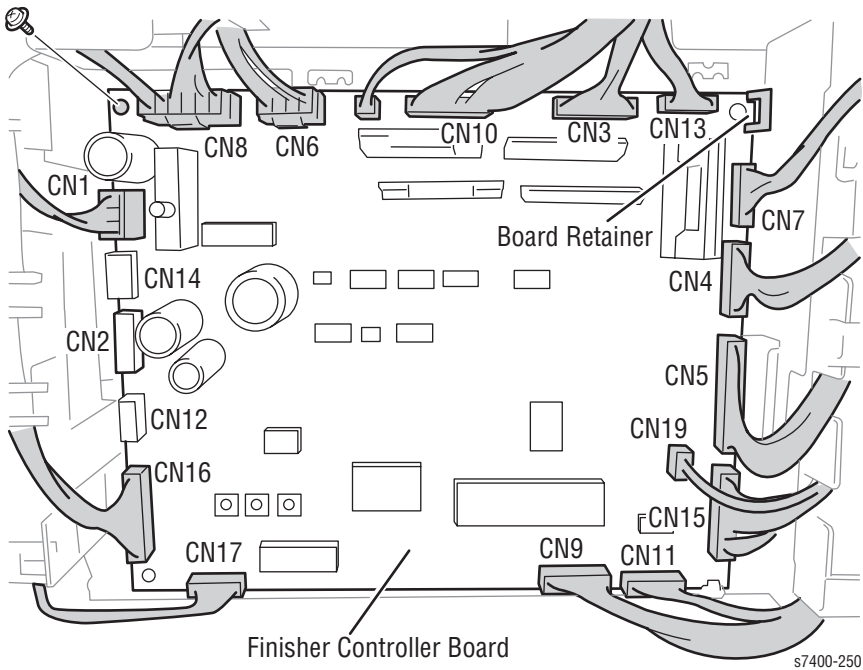
4. Separate the Processing Tray Assembly and the Paddle Assembly as shown.



# Boards

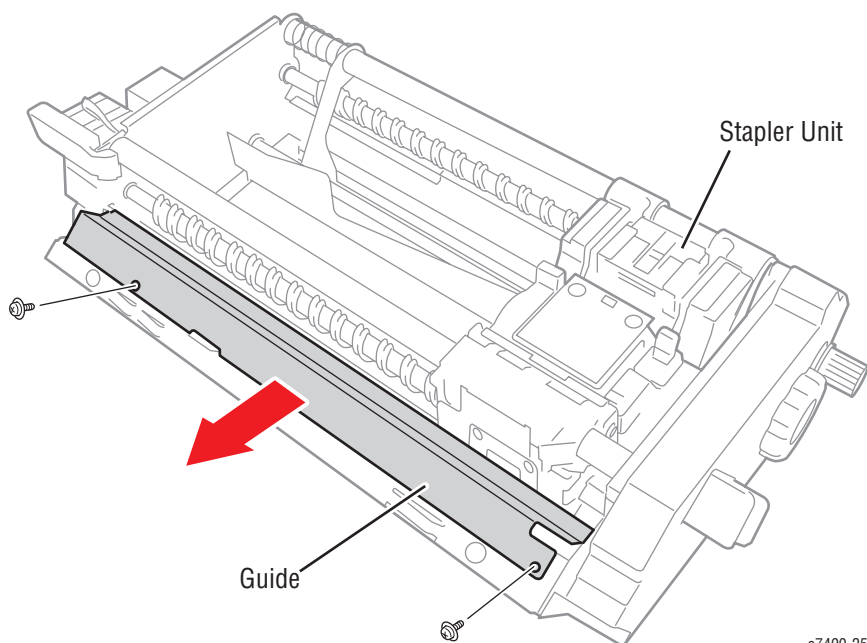
## Finisher Controller Board

1. Remove the Rear Cover (page 5-11).
2. Disconnect the 17 connectors and remove the screw (metal flange, 6 mm).
3. Free the board retainer and detach the Finisher Controller Board.



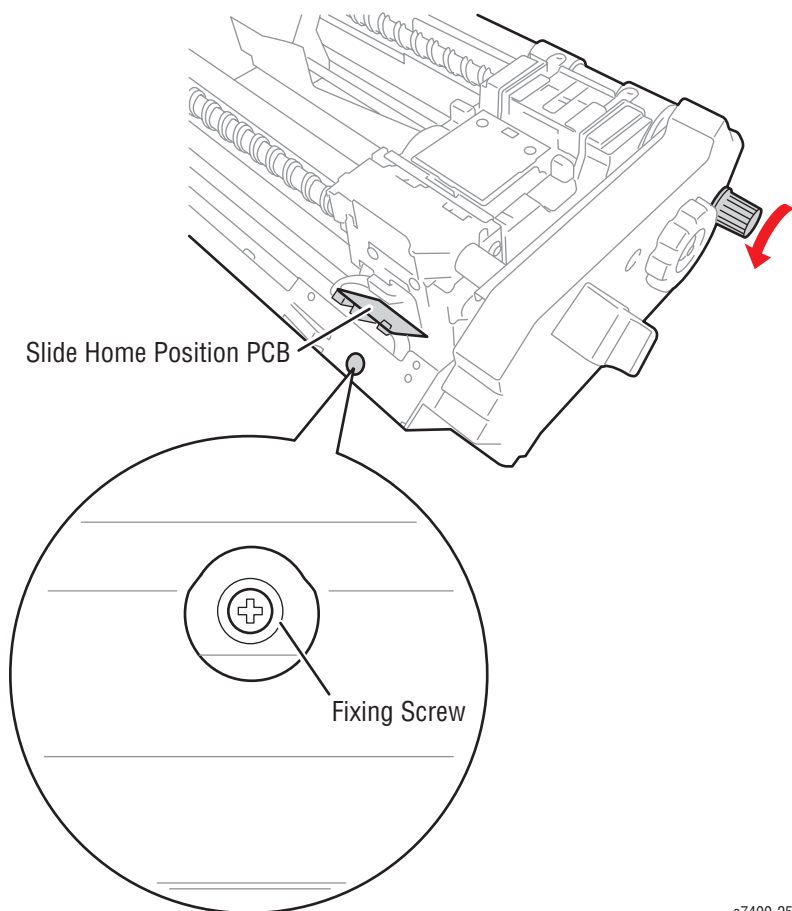
## Home Position Board

1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Open the Front Door and turn the knob on the stapler slide in the direction of the arrow to slide the stapler to the front-most position.
5. Remove the Stapler Unit (page 5-108).
6. Place the Stapler Unit as shown below.
7. Remove the two screws (metal flange, 6 mm) and detach the metal guide.



s7400-251

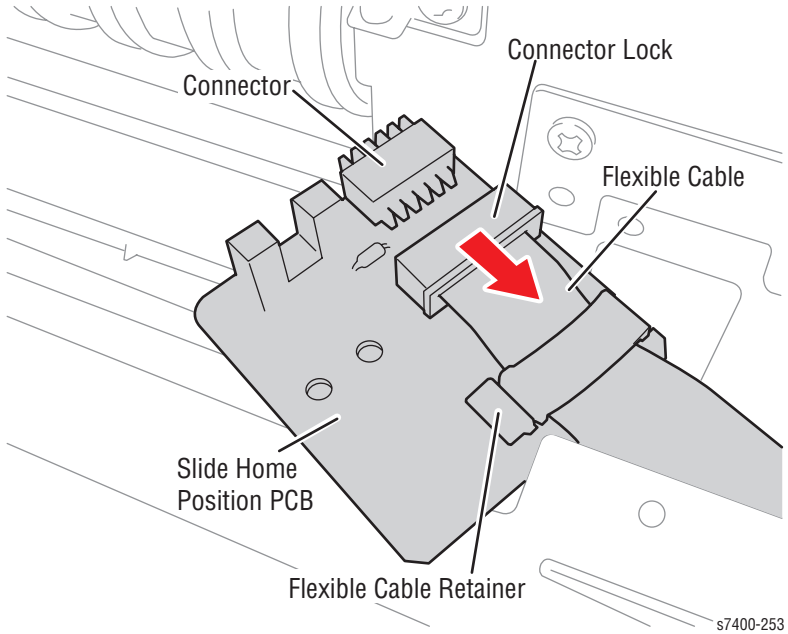
8. Turn the knob on the stapler side in the direction of the arrow so that the fixing screw (metal, 10 mm) of the Slide Home Position Board is in view through the round hole.



s7400-252

9. Remove the fixing screw (metal, 10mm).

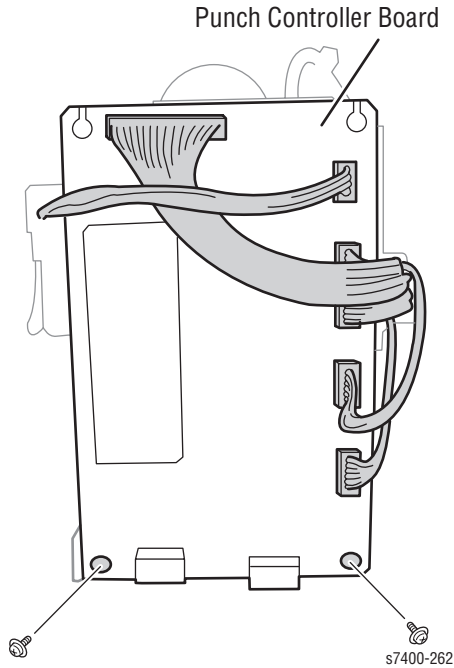
10. Disconnect the connector.
11. Remove the flexible cable retainer.
12. Free the lock of the connector in the direction of the arrow, and then detach the flexible cable.



13. Detach the board.

# Punch Control Board

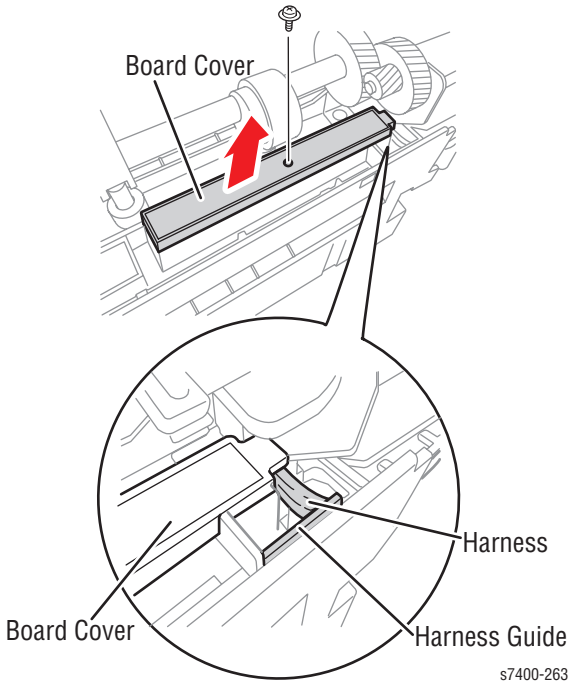
1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Remove the two screws (metal flange, 6 mm).
5. Disconnect the five connectors to remove the Punch Control Board.



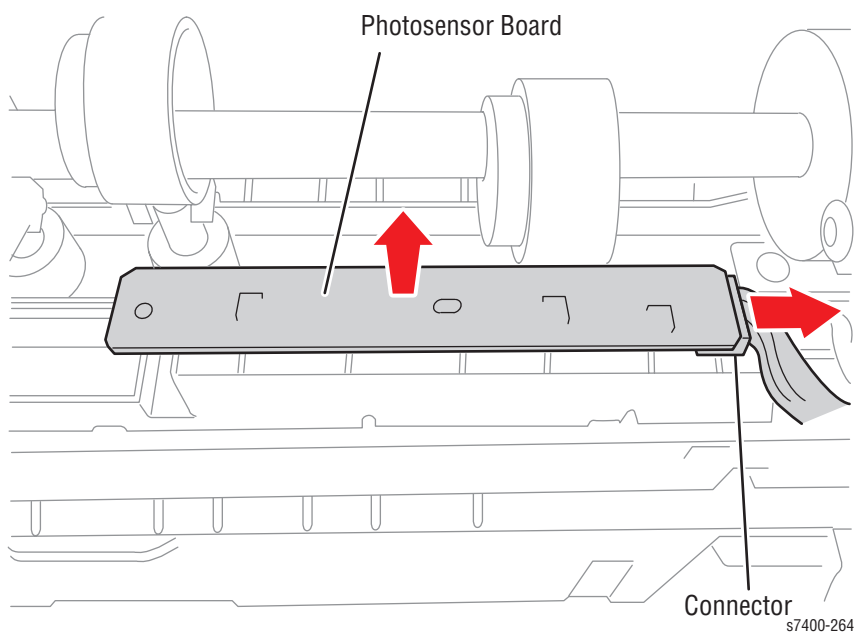


# Photo Sensor Board

1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Remove the Punch Motor Assembly (page 5-46).
5. Remove the screw (metal flange, 6 mm).
6. Remove the harness from the harness guide on the board, and then detach the cover.

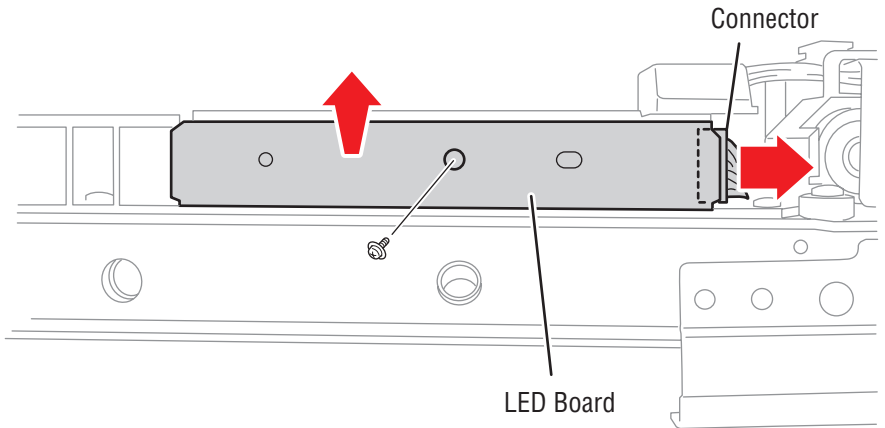


7. Disconnect the connector to remove the Photosensor Board.



## Punch LED Board

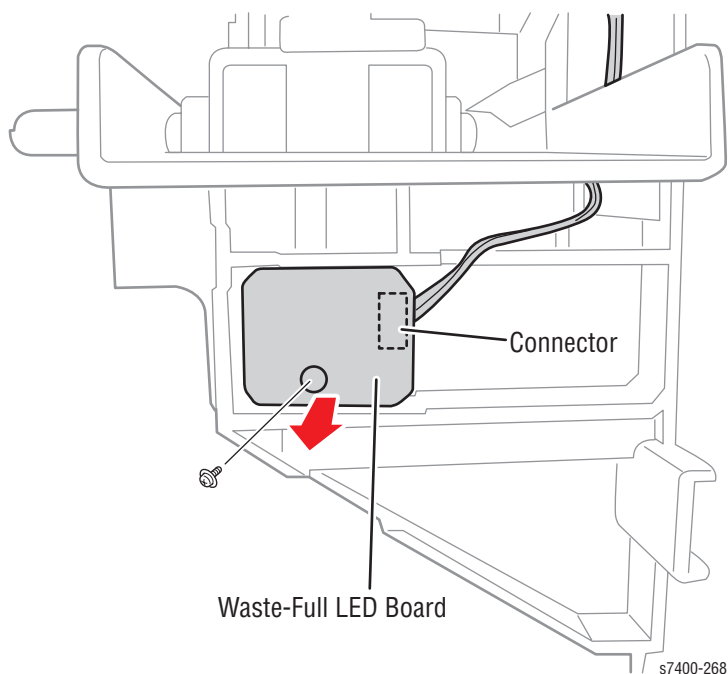
1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Remove the Waste Case Box.
5. Disconnect the connector.
6. Remove the harness from the harness guide.
7. Remove the metal screw (metal flange, 6 mm).
8. Remove the screw (metal flange, 6 mm) to detach the base cover.
9. Disconnect the connector to remove the Punch LED Board.



s7400-265

## Waste Full LED Board

1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Remove the screw (metal flange, 6 mm).
5. Disconnect the connector to remove the board.



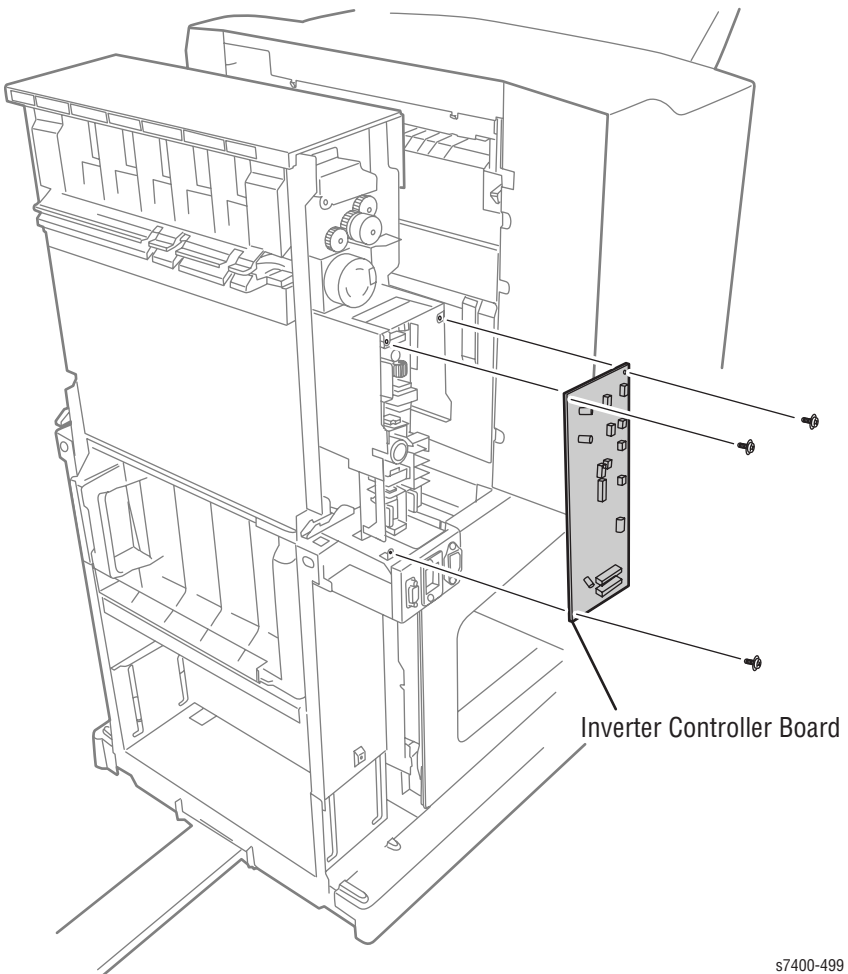
# Inverter Controller Board

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Disconnect all cables.

## Replacement Note

It is a good idea to label all connectors to make sure that you replace each one in its proper plug during reassembly.

4. Remove the two top screws (metal flange, 6 mm) securing the board to the chassis. It is not necessary to remove the lower left screw.
5. Lift the board up to free it from the slots before you pull it out of the chassis.



s7400-499

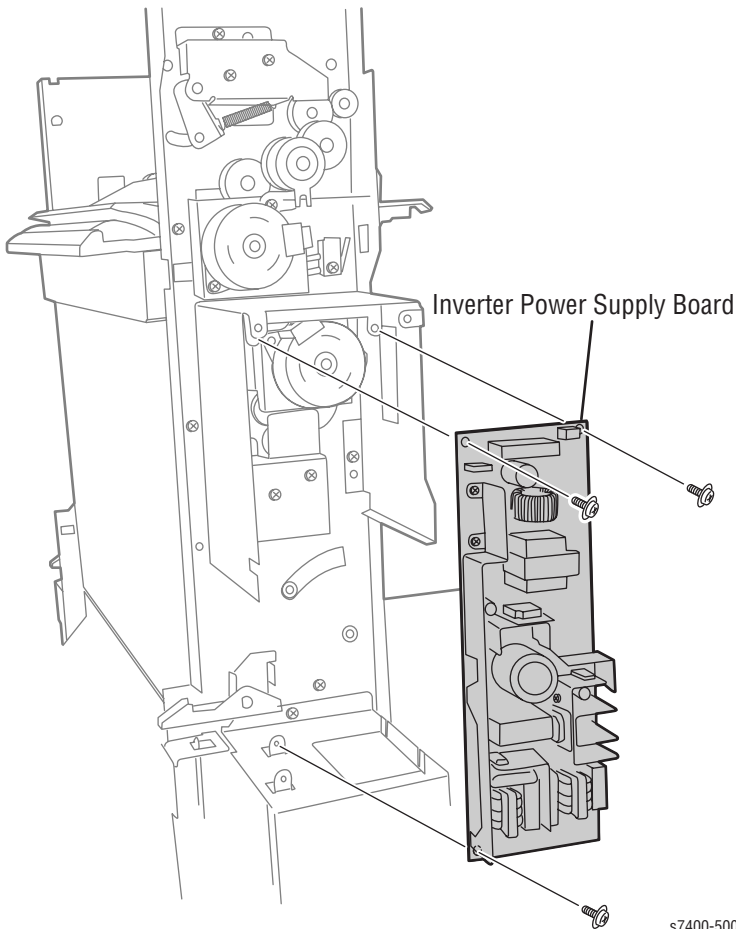
# Inverter Power Supply Board

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Remove the Inverter Controller Board (page 5-55).
4. Disconnect all cables.

## Replacement Note

It is a good idea to label all connectors to make sure that you replace each one in its proper plug during reassembly.

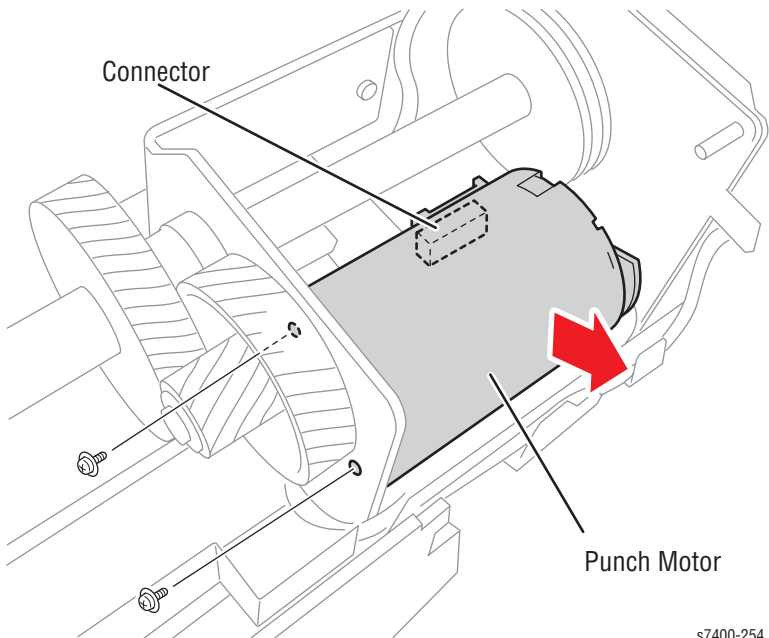
5. Remove three screws (metal flange, 6 mm) securing the board to the chassis.
6. Pull the board out of the chassis slots to remove the board.



# Motors, Clutches, and Solenoids

## Punch Motor

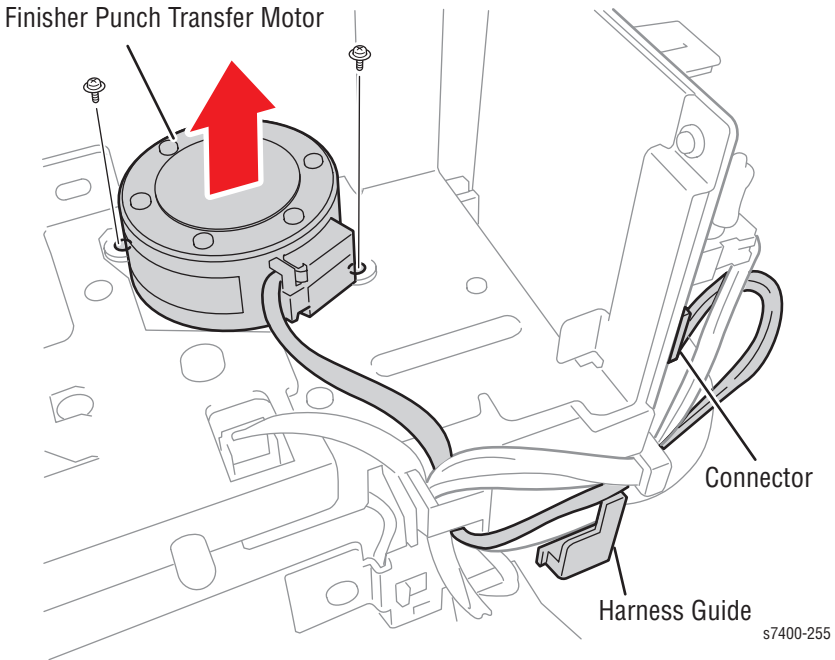
1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Disconnect the connector J002 on the Punch Motor.
5. Remove the two metal screws (metal flange, 6 mm) securing the motor to the chassis.
6. Lift out and remove the Punch Motor Unit.



s7400-254

# Finisher Punch Transfer Motor

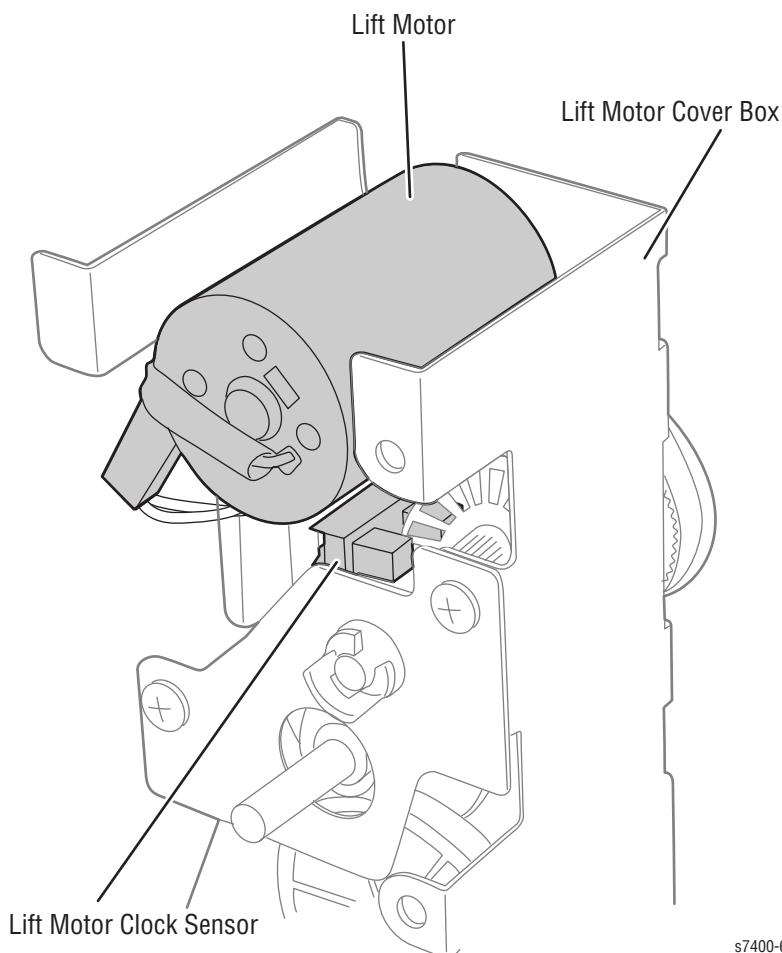
1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Disconnect connector to the motor.
5. Remove the harness from the harness guide.
6. To remove the Finisher Punch Transfer Motor from the Punch Unit, remove the two metal screws (metal flange, 6 mm) securing the motor to the chassis and lift out.





## Lift Motor

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover (page 5-13).
4. Remove the Side Guide (page 5-107).
5. Remove three screws (metal, 6 mm) from the Lift Motor cover box.
6. Disconnect connector CN 70 from the cover box and motor, then lift the cover box (which includes motor and gear assembly) free from the chassis.
7. Slide the belt off of the motor.



s7400-667

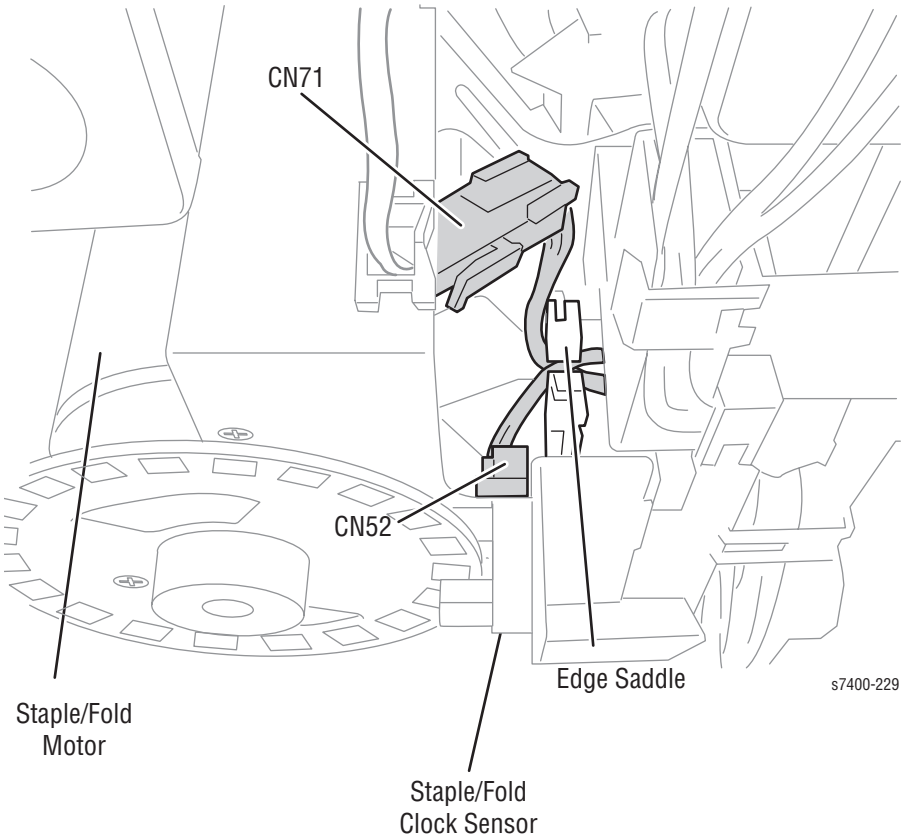
8. To remove the motor, remove the two small screws (metal, 4 mm) holding the motor to the cover box.

# Staple/Fold Motor

- 1. Remove the Paper Exit Tray (page 5-7).
- 2. Remove the Rear Cover (page 5-11).
- 3. Remove the Staple/Fold Drive Unit (page 5-30).
- 4. Disconnect connector CN71 from the motor.
- 5. Face the drive unit toward you and remove two screws (metal, 6 mm) holding the motor to the Staple/Fold Drive Unit.

**Note**

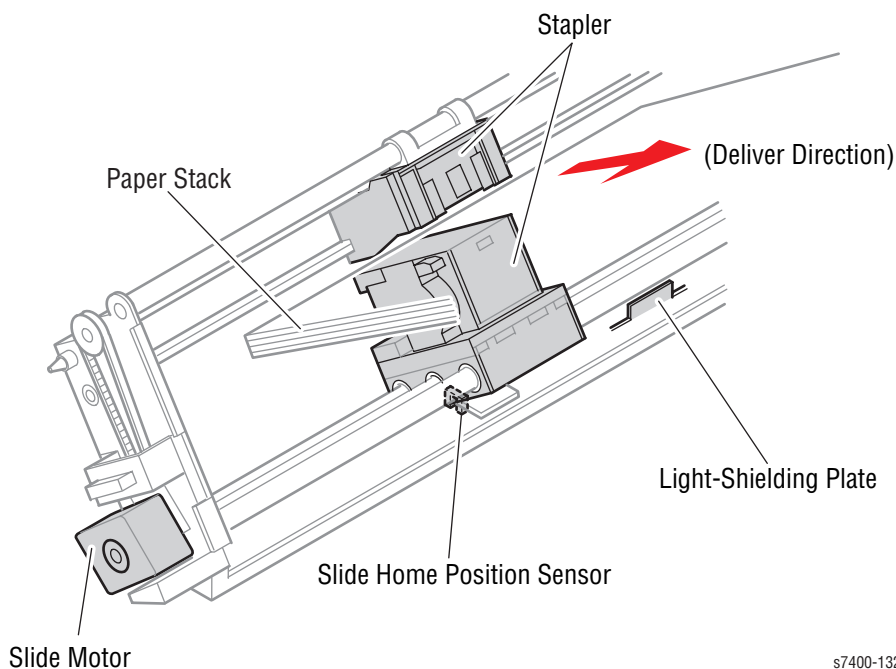
You will need to rotate the sensor wheel to access the screws.



s7400-229

## Slide Motor

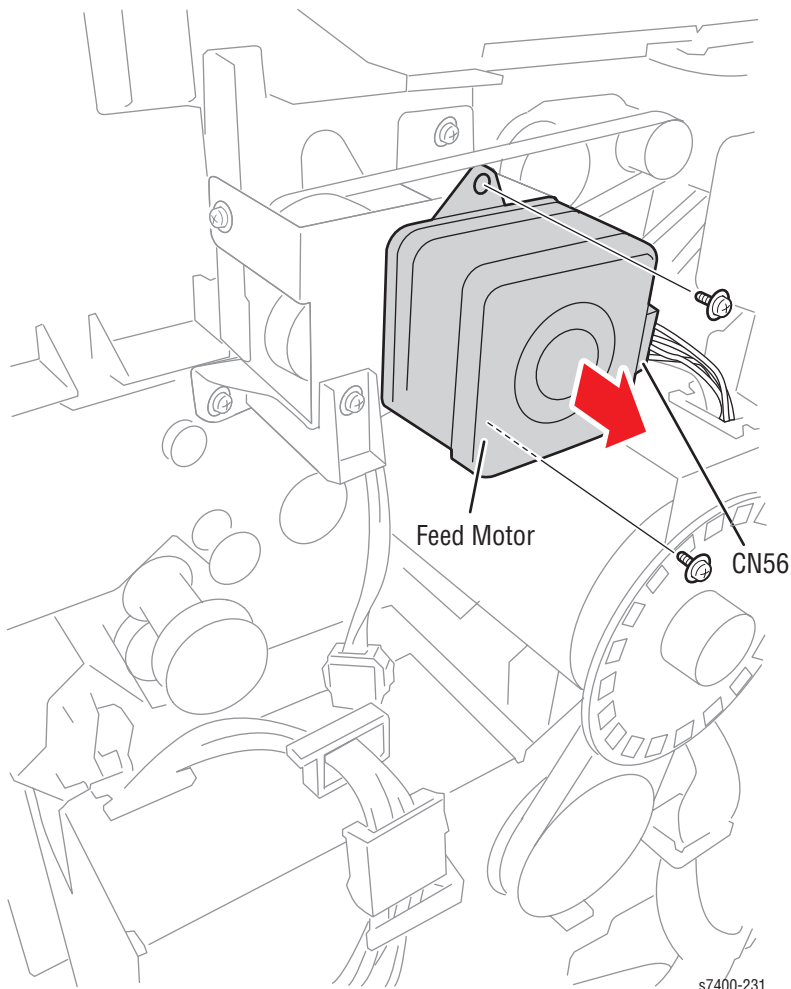
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Staple Unit (page 5-29).
4. With the Staple Unit facing you, disconnect connector CN72 from the motor.
5. Slide the belt off of the motor gear.
6. Remove two screws (metal, 4 mm) holding the motor to the Staple Unit.



s7400-132

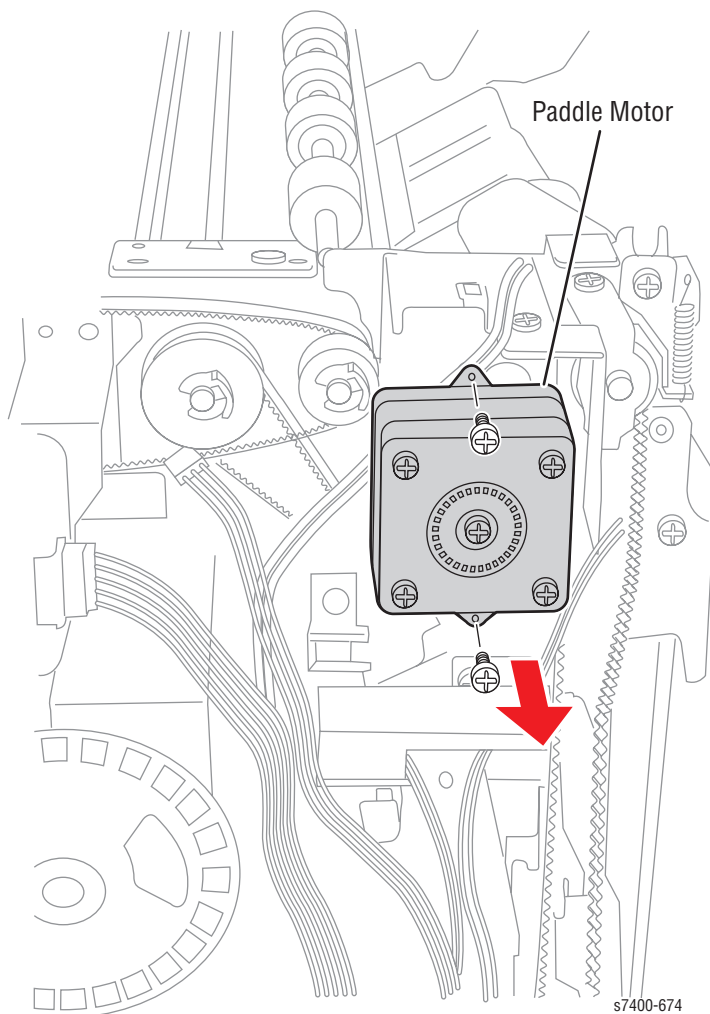
## Feed Motor

1. Remove the Front Door (page 5-8).
2. Remove the Rear Cover (page 5-11).
3. Remove the Punch Unit (page 5-50).
4. Open the harness retainer and disconnect the cable from connector CN56.
5. Remove two small screws (metal flange, 6 mm) and detach the Feed Motor Unit.



## Paddle Motor

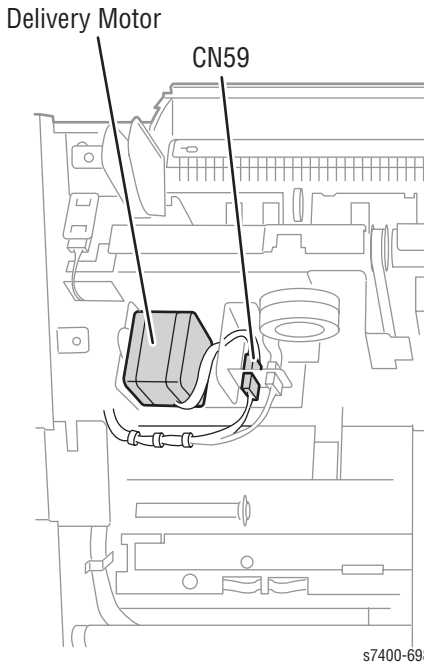
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover (page 5-13).
4. Disconnect connector CN57 from motor wiring.



5. To remove the motor, remove two screws (metal, 6 mm), and lift the unit free from the chassis.

# Delivery Motor

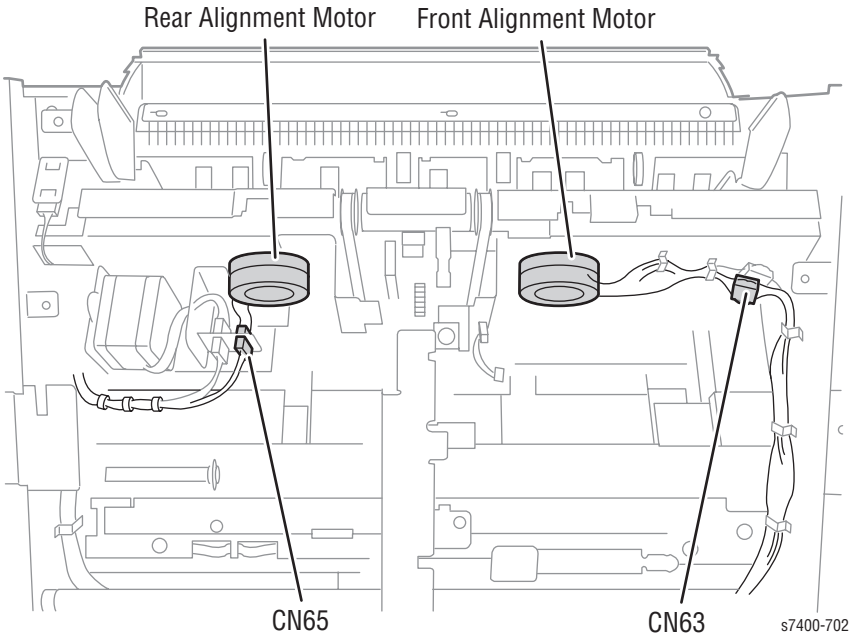
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Side Guide (page 5-107).
4. Refer to the illustration below to locate the Delivery Motor.



5. Slide the belt off of the motor gear.
6. To remove the motor, first remove the 6-wire connector CN59 from the motor, and then remove two small screws (metal, 4 mm) holding the motor to the chassis.

# Alignment (Front and Rear) Motors

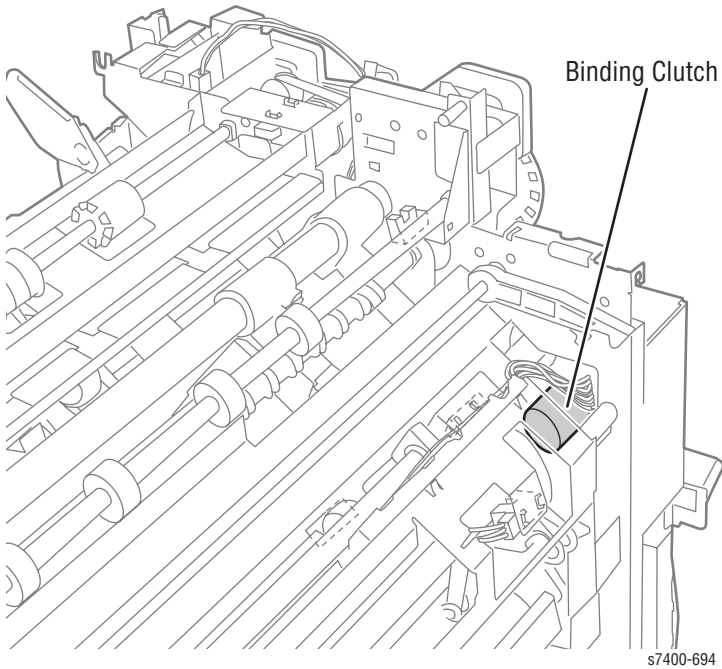
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the Side Guide (page 5-107).
6. Refer to the illustration below to locate both Alignment Motors.



7. To remove either motor, first remove the 5-wire connector (CN63 Front, and CN65 Rear) from the motor, and then remove two screws (metal, 6 mm) and a washer holding the motor to the paper guide.

# Binding Clutch

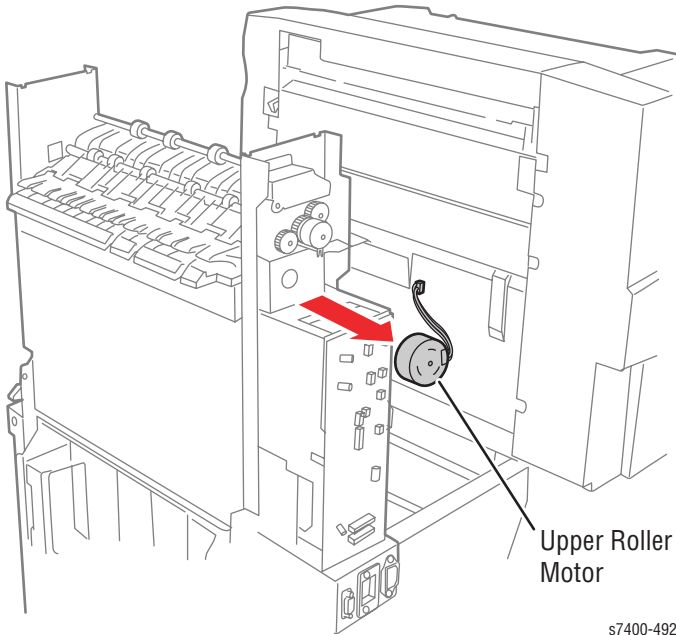
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Staple/Fold Drive Unit (page 5-30).
4. With Staple/Fold unit out of the way, you can now disconnect connector CN72 from the clutch.
5. Remove the k-clips from the gear assembly of the clutch.
6. Slide the belt off of the clutch gear.
7. Remove three screws (metal, 6 mm) holding the clutch to the chassis.





# Inverter Upper Roller Motor

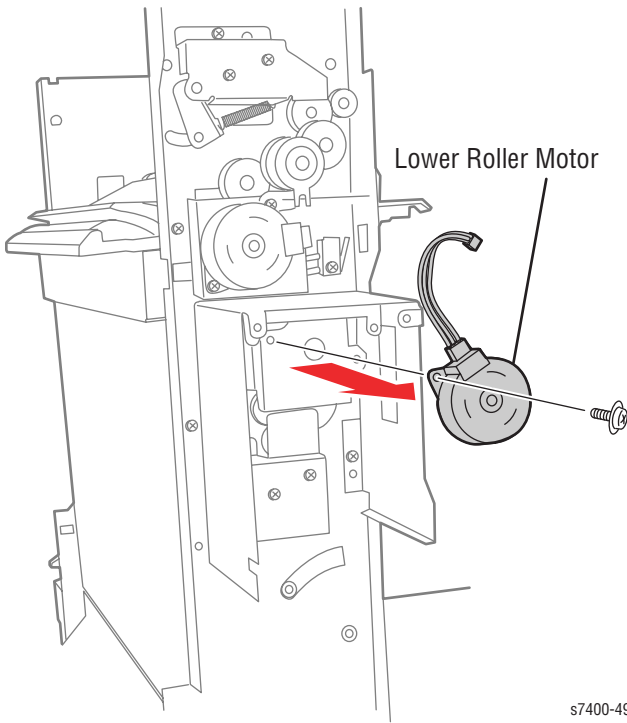
1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Disconnect the 4-wire cable from the Inverter Controller Board connector labeled Motor\_B. Be sure to lift the cable harness out of the cable guides.
4. Remove one screw (metal flange, 6 mm) from the upper right (and its anti-vibration spring) and one screw from the lower left of the motor.
5. Pull the motor and its associated gear free from the gear assembly.



s7400-492

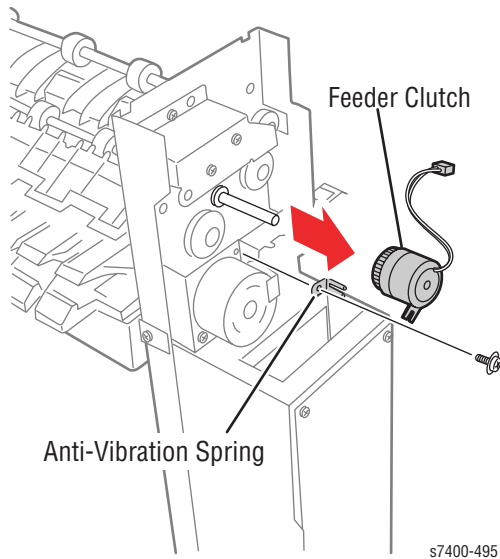
# Inverter Lower Roller Motor

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Disconnect the 4-wire cable from the inverter controller board connector labeled Motor\_A. Be sure to lift the cable harness out of the cable guides.
4. Remove the Inverter Controller Board (page 5-55).
5. Remove the Power Supply Board (page 5-56).
6. Remove the two screws (metal flange, 6 mm) and the anti-vibration spring from the motor.
7. Pull the motor and its associated gear free from the gear assembly.



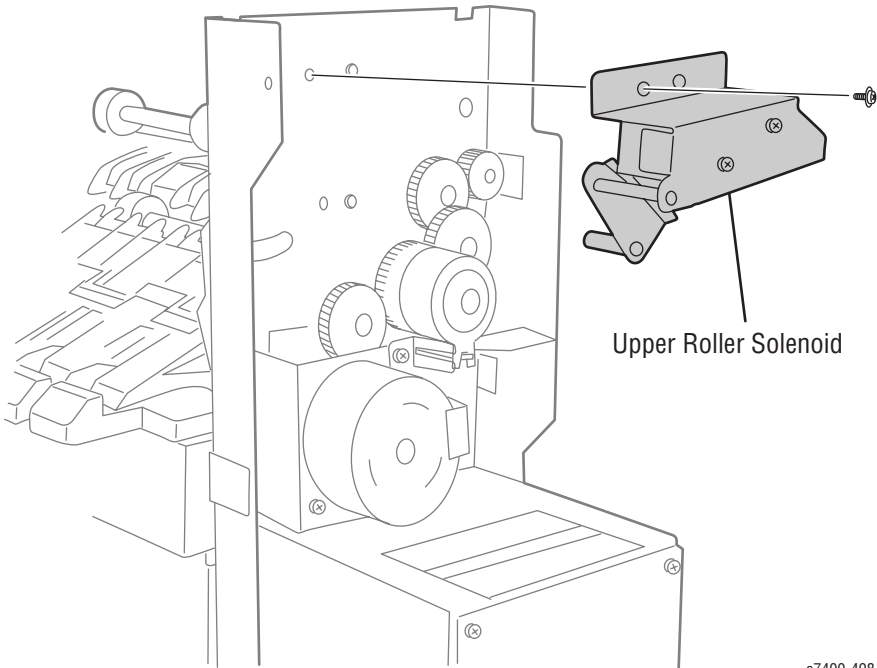
## Inverter Feeder Clutch

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Remove the Inverter Top Cover (page 5-23).
4. Disconnect the two-wire connector from connector plug (FAN) on the Inverter Controller Board. Make sure you also pull the wires free from the cable guides.
5. Remove the screw (metal flange, 6 mm) and anti-vibration spring from the lower left side of the clutch.
6. Remove the e-clip from the end of the clutch.
7. With the anti-vibration spring and e-clip removed, you can pull the clutch and its gear free from the roller gear assembly.



# Inverter Upper Roller Solenoid

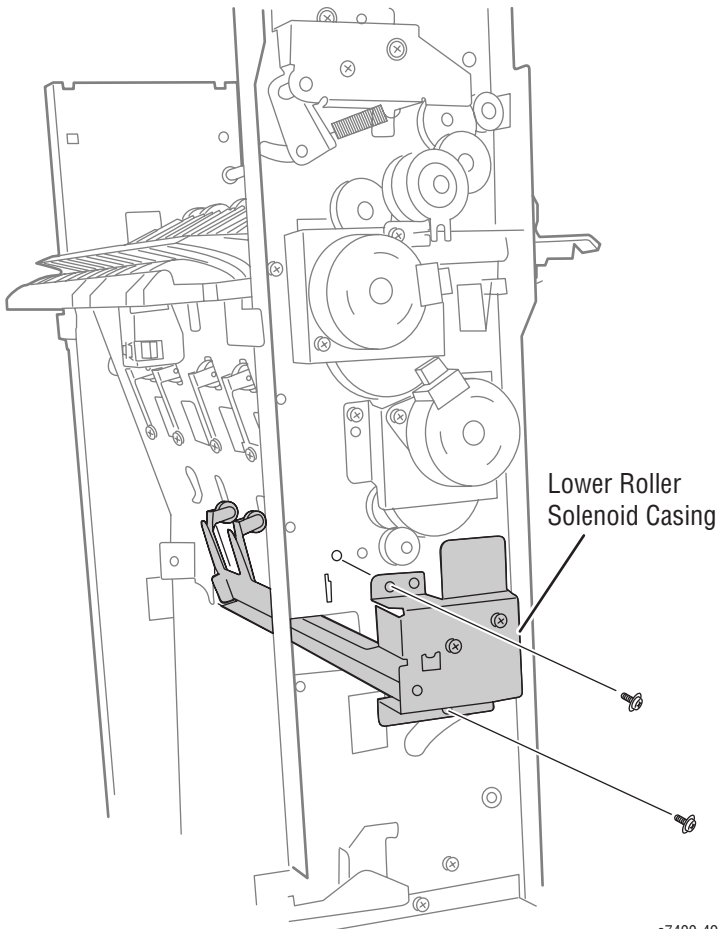
1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Remove the Top Cover (page 5-23).
4. Disconnect the cable from the connector (CL2) on the Inverter Controller Board. Be sure you also free the cable harness from the cable guide.
5. Carefully remove the tension spring from the solenoid and swing plate.
6. From the chassis side, carefully free the paper guide from the swing plate.
7. Remove two screws (metal flange, 6 mm) from the solenoid casing.
8. To remove the solenoid unit, remove two small brass screws (metal, 4 mm) from the solenoid casing and lift the relay from the casing.



s7400-498

# Inverter Lower Roller Solenoid

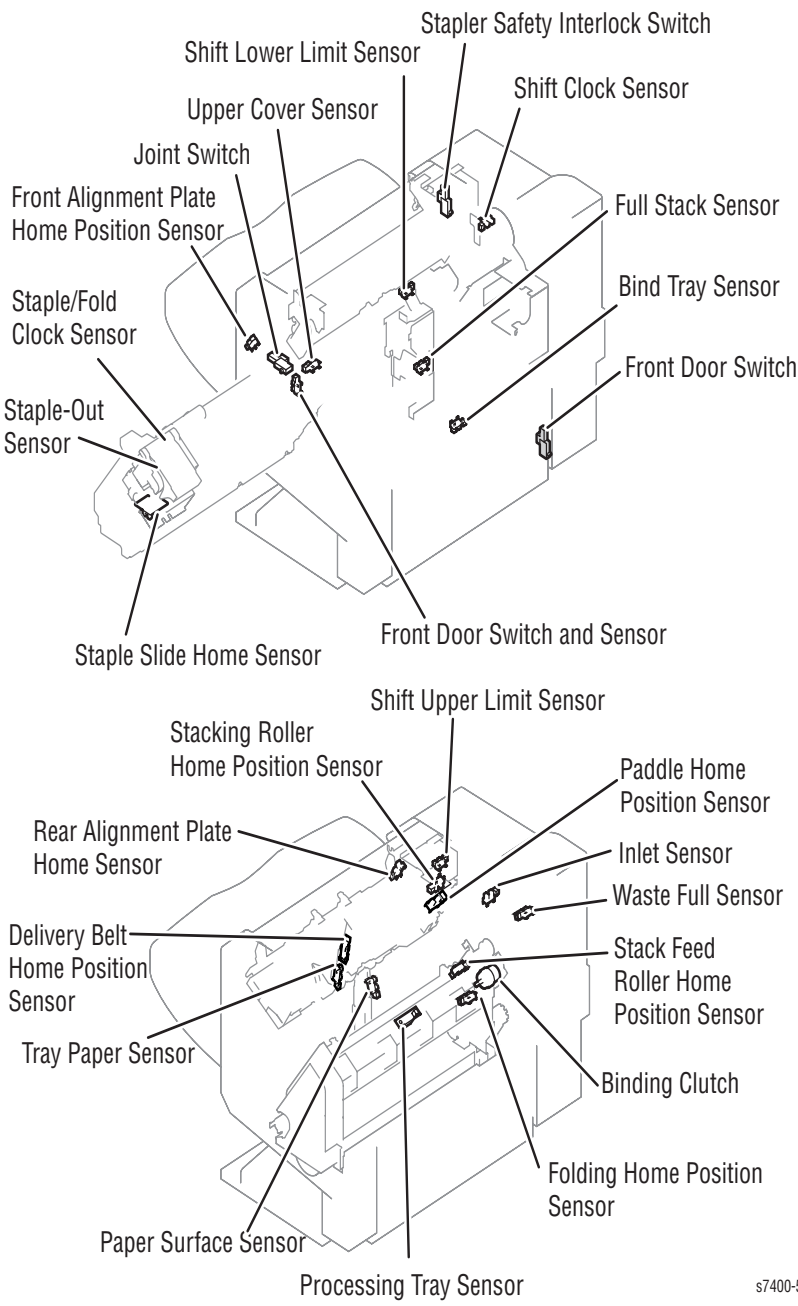
1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Remove the Top Cover (page 5-23).
4. Disconnect the cable from the Inverter Controller Board. Be sure you free the cable harness from the cable guide.
5. Remove the Inverter Controller Board (page 5-55).
6. Remove the Power Supply Board (page 5-56).
7. Remove the tension spring from the solenoid and swing plate.
8. From the chassis side, carefully free the paper guide from the swing plate.
9. Remove two screws (metal flange, 6 mm) from the solenoid casing.
10. To remove the solenoid unit, remove two small brass screws (metal, 4 mm) from the solenoid casing and lift the relay from the casing.



s7400-493

# Finisher Sensors and Switches

The topics in this section describe the disassembly for each sensor in the Finisher. See page 5-99 for details of the Inverter sensors within the Finisher.

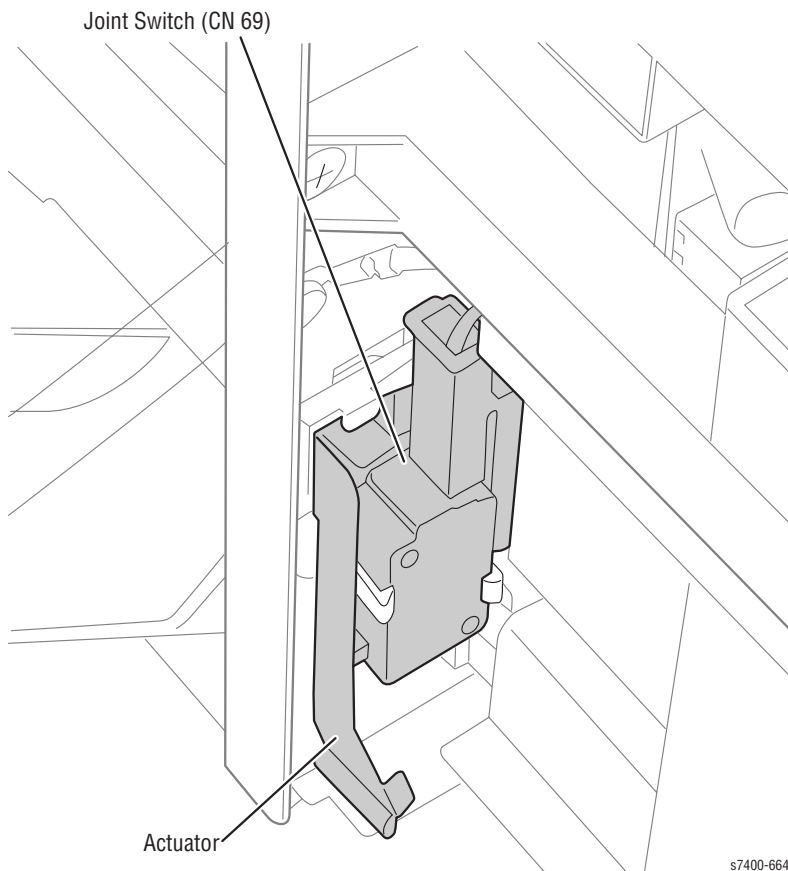


s7400-542

## Joint Switch

The Joint Switch is activated when the Finisher Unit connects to the printer. This switch opens to prevent the power supply from placing hazardous voltages in accessible areas when the Finisher is undocked from the printer. To replace:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Locate the Joint Switch and plastic harness protector (see illustration).



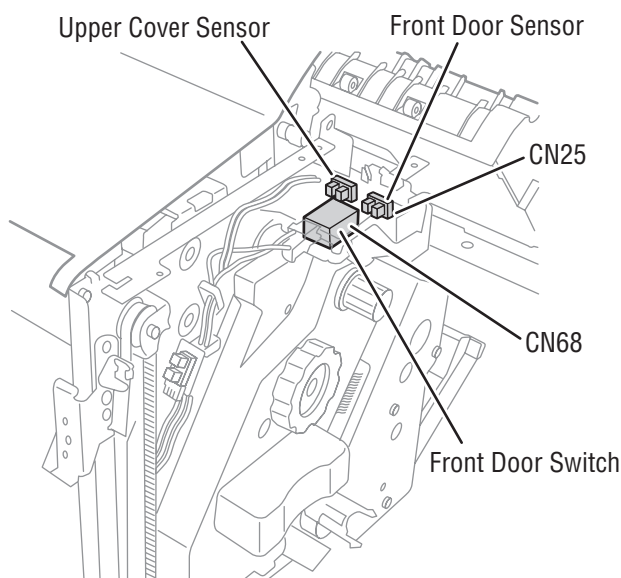
s7400-664

6. Lift connector CN69 off of the two connector pins. You may need to free the two wires from the cable harness.
7. Carefully holding the large plastic harness protector to one side, remove the single screw (metal, 6 mm) holding the switch to the chassis.
8. Release the three plastic hooks securing the switch to the plastic and remove.

## Front Door Switch and Sensor

The Front Door Sensor detects when the Front Door (Door J) is open or removed. The Front Door Interlock Switch will open to prevent the power supply from placing hazardous voltages in accessible areas when the Front Door is removed. To remove and replace the switch and/or the Sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Locate the plastic mounting unit that houses the Front Door Switch and the Front Door Sensor (see illustration).



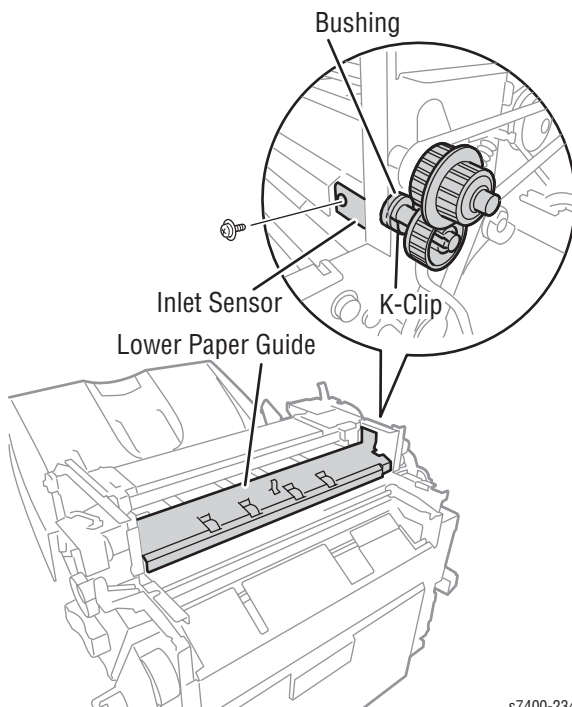
s7400-699

6. Remove the single screw (metal, 6 mm) holding the plastic mounting holder to the chassis.
7. To remove the Front Door Switch, first lift connector CN68 off of the two connector pins, and then release the two hooks securing the switch to the chassis.
8. To remove the Front Door Sensor, first remove the 4-wire connector CN25 from the sensor, and then pinch the plastic tabs to pull the sensor free.



## Inlet Sensor

1. Remove the Upper Cover (page 5-13).
2. Remove the Upper Right Cover Assembly (page 5-37).
3. Remove the Feed Motor Unit (page 5-62).
4. Remove the Feed Roller (page 5-109).
5. Remove the screw (metal flange, 6 mm) and detach the Inlet Sensor.

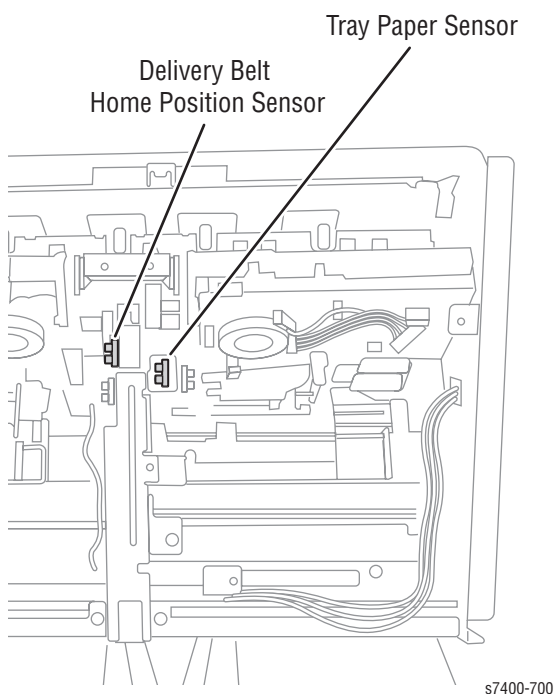


s7400-234

## Tray Paper Sensor

The Tray Paper Sensor detects when the paper tray is removed from the Finisher. To remove and replace the Tray Paper Sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the Side Guide (page 5-107).
6. To locate the sensor, look through the top of the side area (where you removed the Side Guide) and press the paper tray activator a few times (see illustration). You will see the activator as it enters the sensor below.

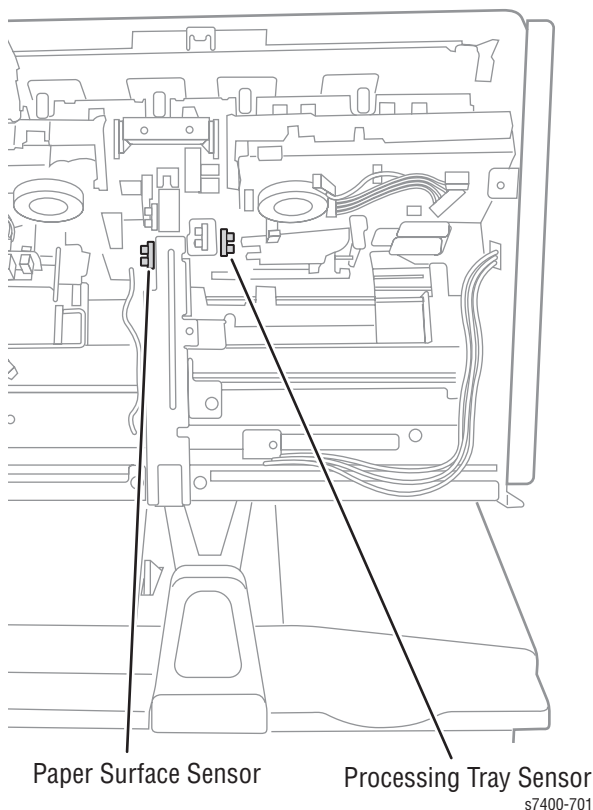


7. To remove the sensor, first remove the 4-wire connector CN32 from the sensor, and then, using small needle nose pliers, pinch the plastic tabs to pull one side of the sensor free.

# Paper Surface Sensor

The Paper Surface Sensor detects media in the home position of the delivery tray. To remove and replace the Paper Surface Sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the Side Guide (page 5-107).
6. To locate the sensor, look through the top of the side area (where you removed the Side Guide) and press the paper surface activator a few times (see illustration). You will see the activator as it enters the sensor below.

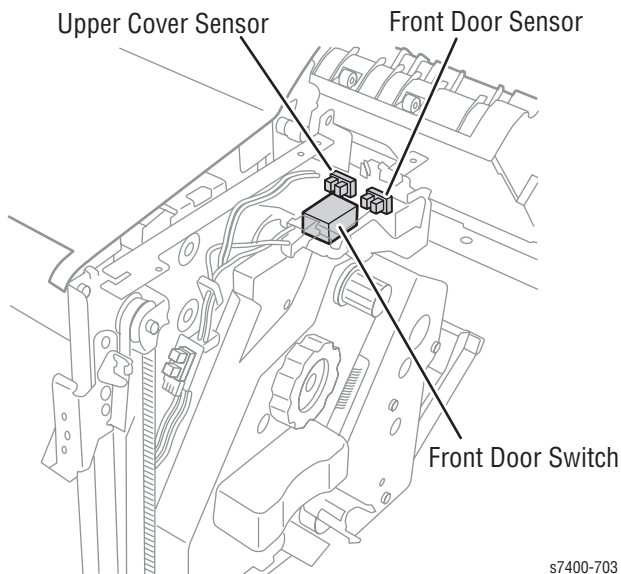


7. To remove the sensor, first remove the 4-wire connector CN35 from the sensor, and then, using small neediness pliers, pinch the plastic tabs to pull one side of the sensor free.

# Upper Cover Sensor

The Upper Cover Sensor detects when the Upper Cover (Door I) is open or removed. To remove and replace the Sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Locate the Upper Cover Sensor (see illustration).



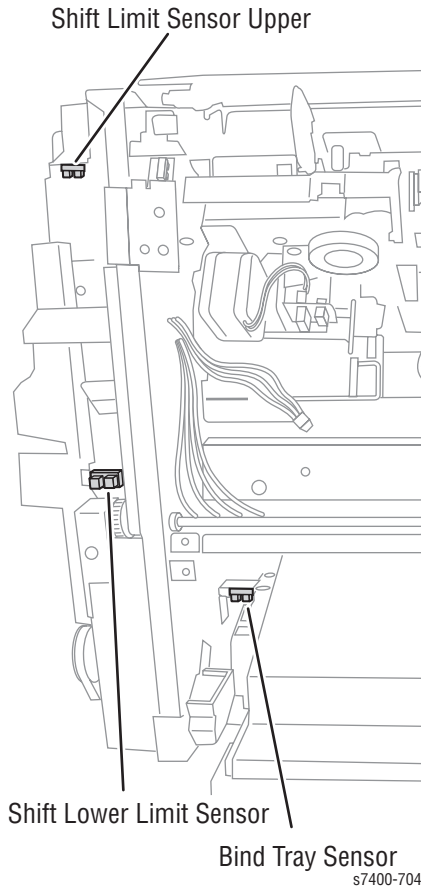
s7400-703

6. To remove the Upper Cover Sensor, first remove the 4-wire connector CN24 from the sensor, and then pinch the plastic hooks to pull the sensor free.

# Shift Limit Sensors

The Shift (Upper and Lower) Limit Sensors detect the upper and lower limits of the delivery tray stack. To remove and replace either of the sensors:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover (page 5-13).
4. Remove the Side Guide (page 5-107).
5. Refer to the illustration below to locate either sensor.

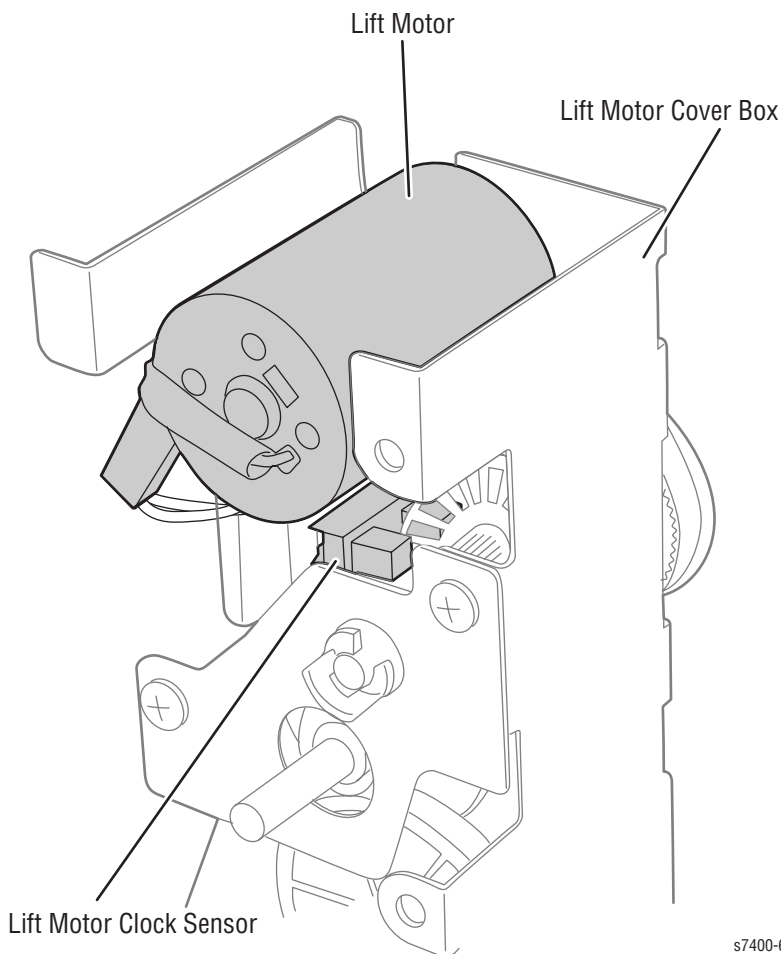


6. To remove either sensor, first remove the 4-wire connector (CN49 Lower, and CN50 Upper) from the sensor. Pinch the plastic tabs to pull the sensor free.

## Lift Motor Clock Sensor

The Lift Motor Clock Sensor detects clock pulses for the stacking operation. To remove and replace the sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover (page 5-13).
4. Remove the Side Guide (page 5-107).
5. Remove 4 screws (metal flange, 6 mm) holding the metal cover box to the chassis, and one screw (metal flange, 6 mm) attaching the large harness to the metal cover box.
6. Turn the box so that you can view the sensor.



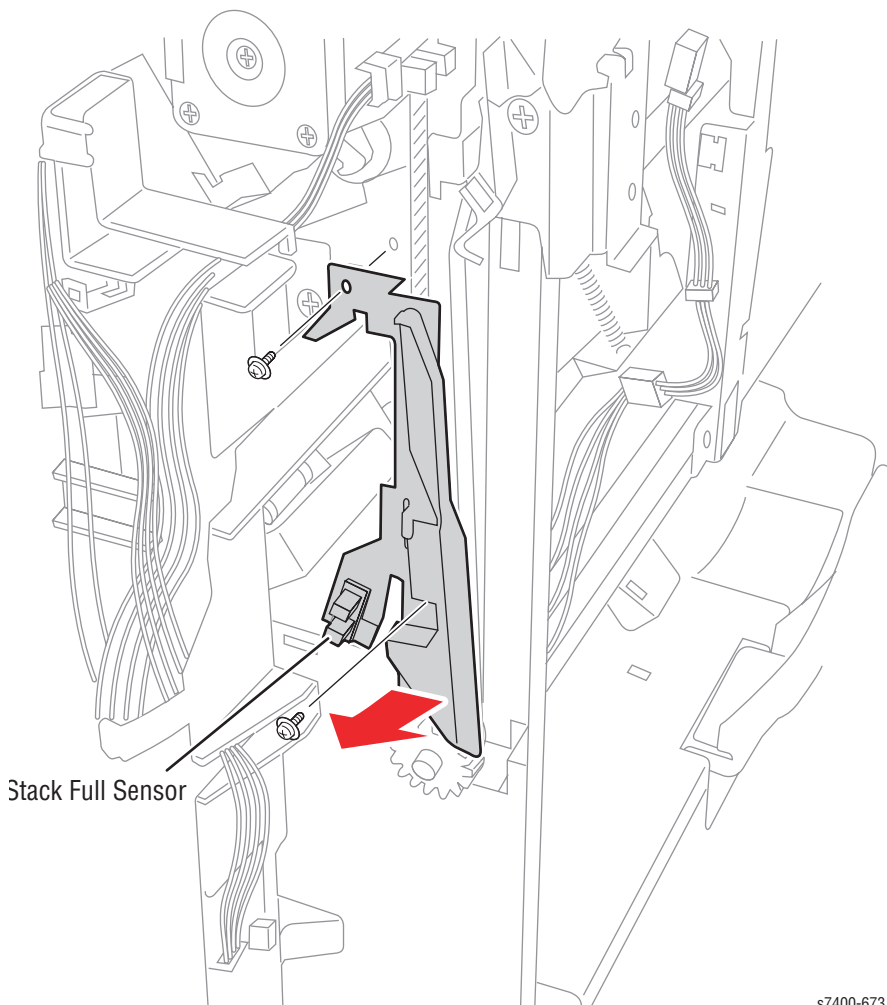
s7400-667

7. To remove the sensor, first remove the 4-wire connector (CN48) from the sensor. Using small needle nose pliers, pinch the plastic tabs to pull the sensor free.

## Stack Full Sensor

The Stack Full Sensor detects over-stacking of media in the delivery tray. To remove and replace the sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover (page 5-13).
4. Remove the Side Guide (page 5-107).



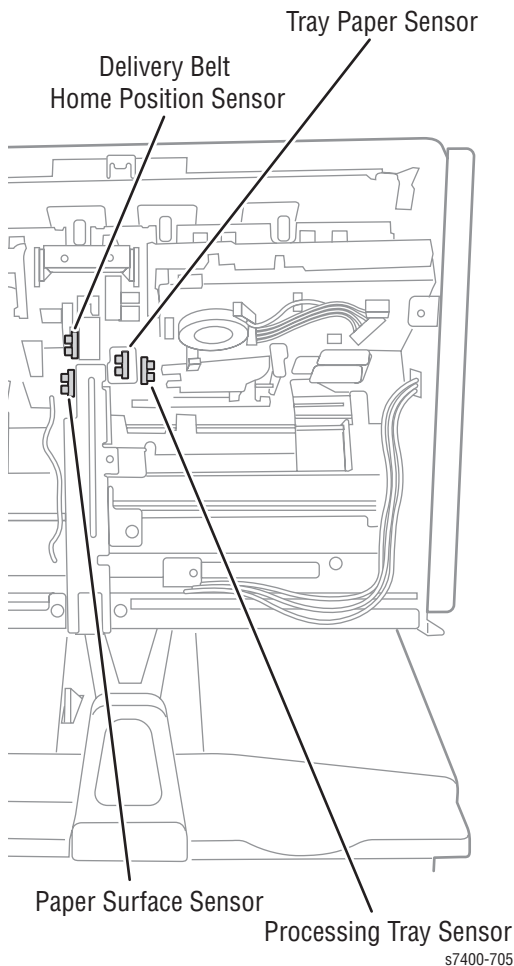
s7400-673

5. Remove two screws (metal flange, 6 mm) holding the sensor to the sensor bracket and activator. Hold the belt to one side to free the bracket and sensor
6. To remove the sensor, first remove the 3-wire connector (CN44) from the sensor. Using small needle nose pliers, pinch the plastic tabs to pull the sensor free.

# Processing Tray Sensor

The Processing Tray Sensor detects the processing stack within the delivery path. To remove and replace the Processing Tray Sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the Side Guide (page 5-107).
6. Refer to the illustration to locate the sensor.



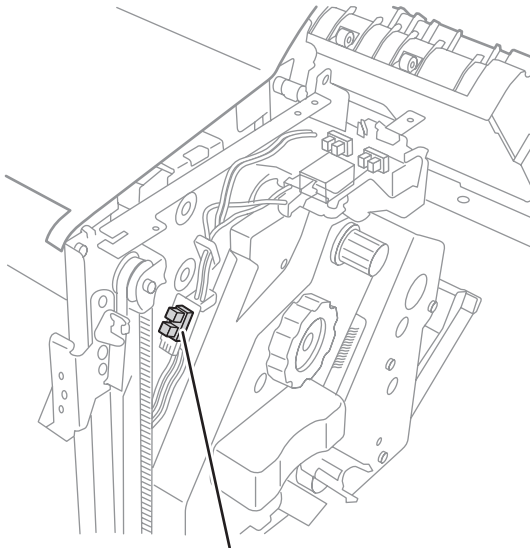
7. To remove the sensor, first remove the 4-wire connector CN29 from the sensor. Pinch the plastic tabs to pull one side of the sensor free.



# Aligning Plate Home Position Sensors

The Aligning Plate Home Position Sensors (front and back) ensure that the size of the selected paper aligns properly with the entrance into the paper path. To remove and replace either Sensor:

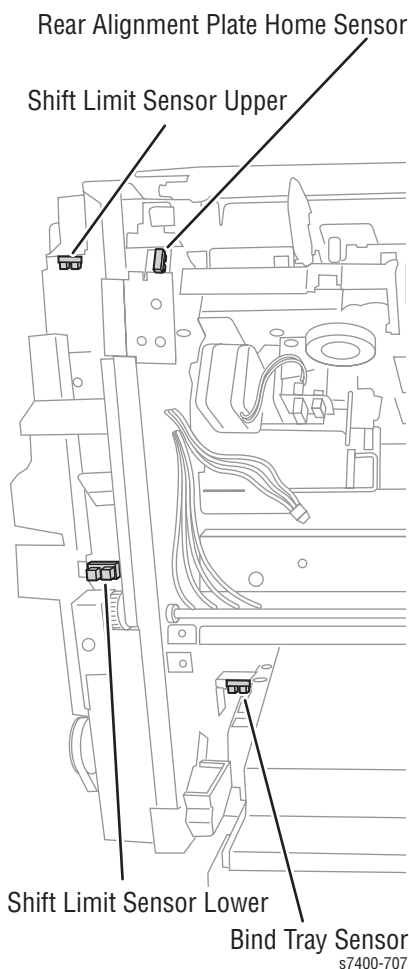
1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Locate the sliding position activators (see illustration).
6. Locate the front sensor.



Front Aligning Plate  
Home Position Sensor

s7400-706

7. Locate the rear sensor.

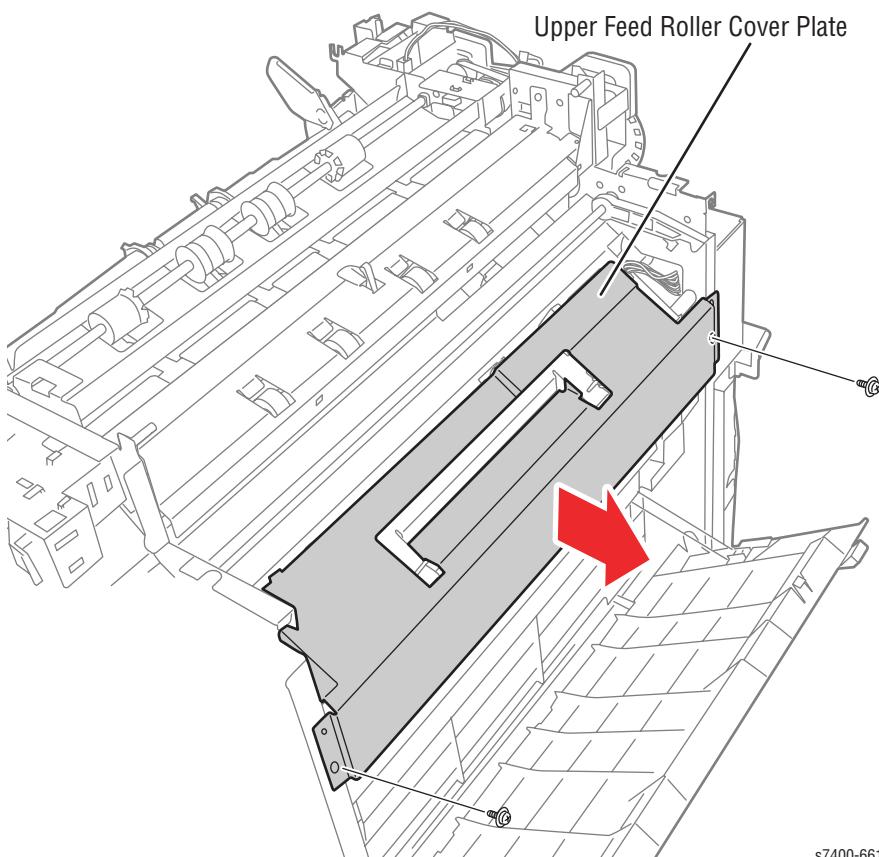


8. To remove the Front or Rear Aligning Plate Home Position Sensor, first remove the 4-wire connector (CN23 for the front or CN36 for the rear), and then pinch the plastic tabs to pull the sensor free.

# Stack Feed Roller Home Position Sensor

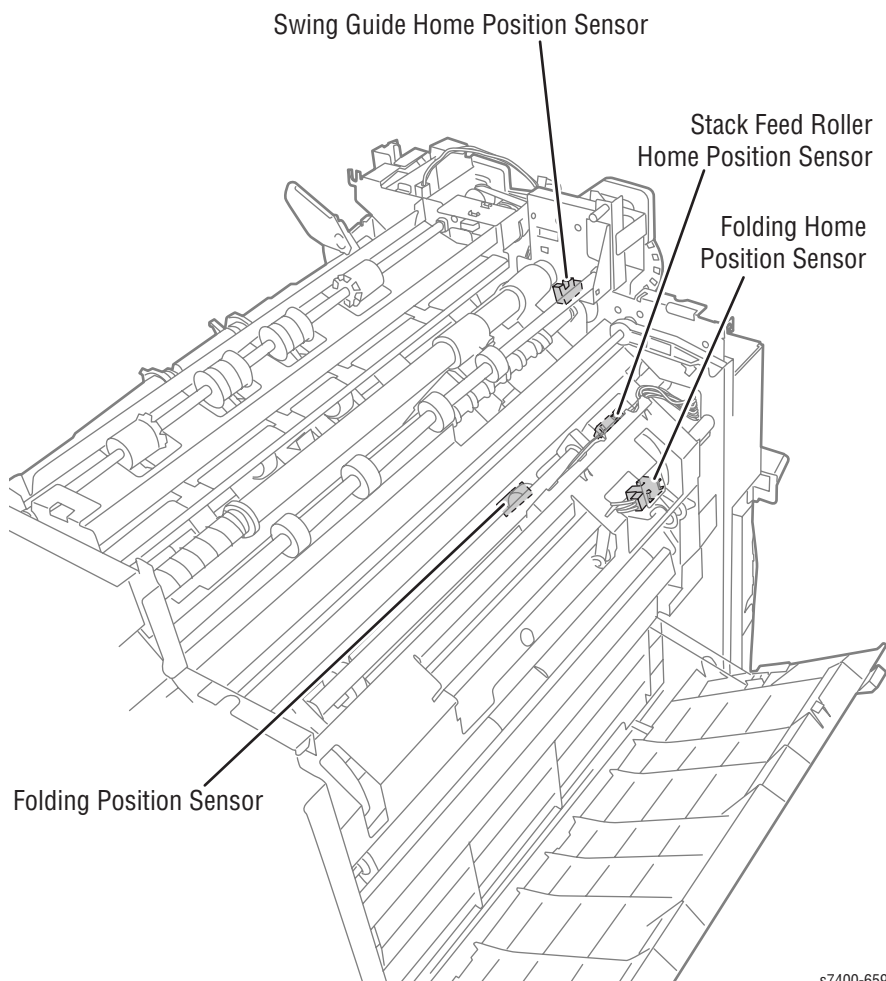
The Stack Feed Roller Home Position Sensor detects the initial home position of the stack feed. To remove and replace the sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the metal cover plate to expose the sensor and connector CN41.



s7400-661

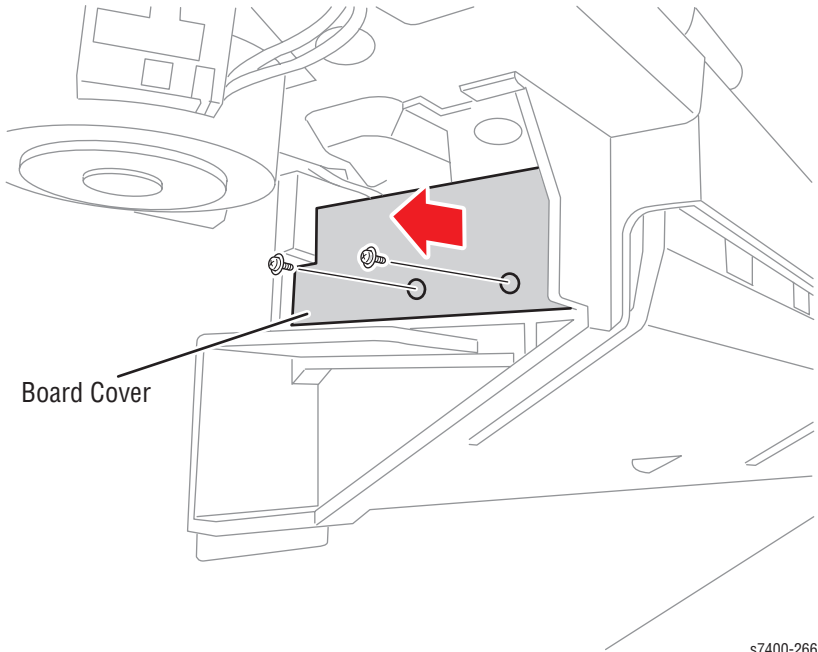
6. To remove the sensor, disconnect CN41 from the sensor, remove one screw (metal, 4 mm), and then pull the sensor free.



7. To remove the sensor, disconnect CN41 from the sensor, remove one screw (metal, 4 mm), and then pull the sensor free.

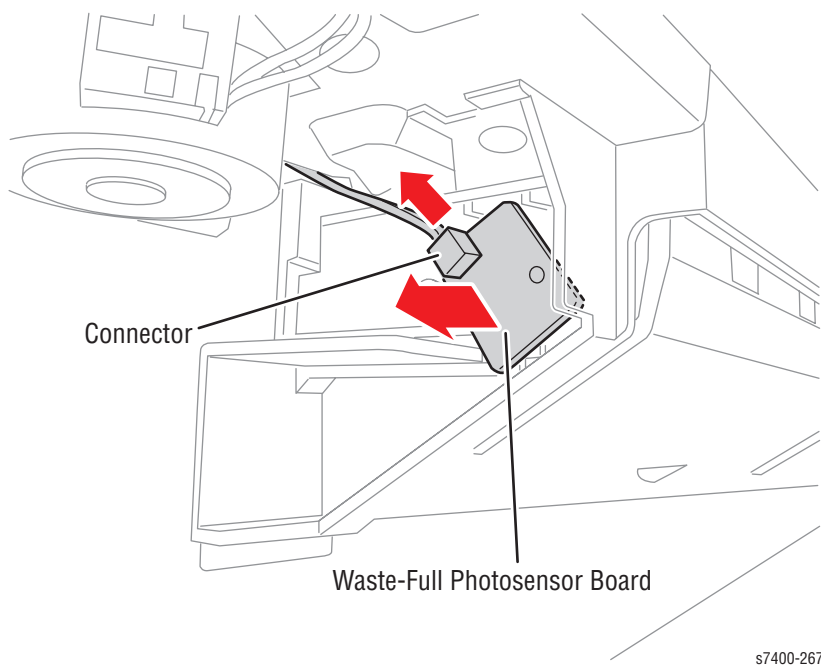
# Waste Full Sensor

1. Remove the Rear Cover (page 5-11).
2. Remove the Front Door (page 5-8).
3. Remove the Upper Cover (page 5-13).
4. Remove the Punch Control Board (page 5-50).
5. Remove the two screws (metal flange, 6 mm) to remove the controller board film.



s7400-266

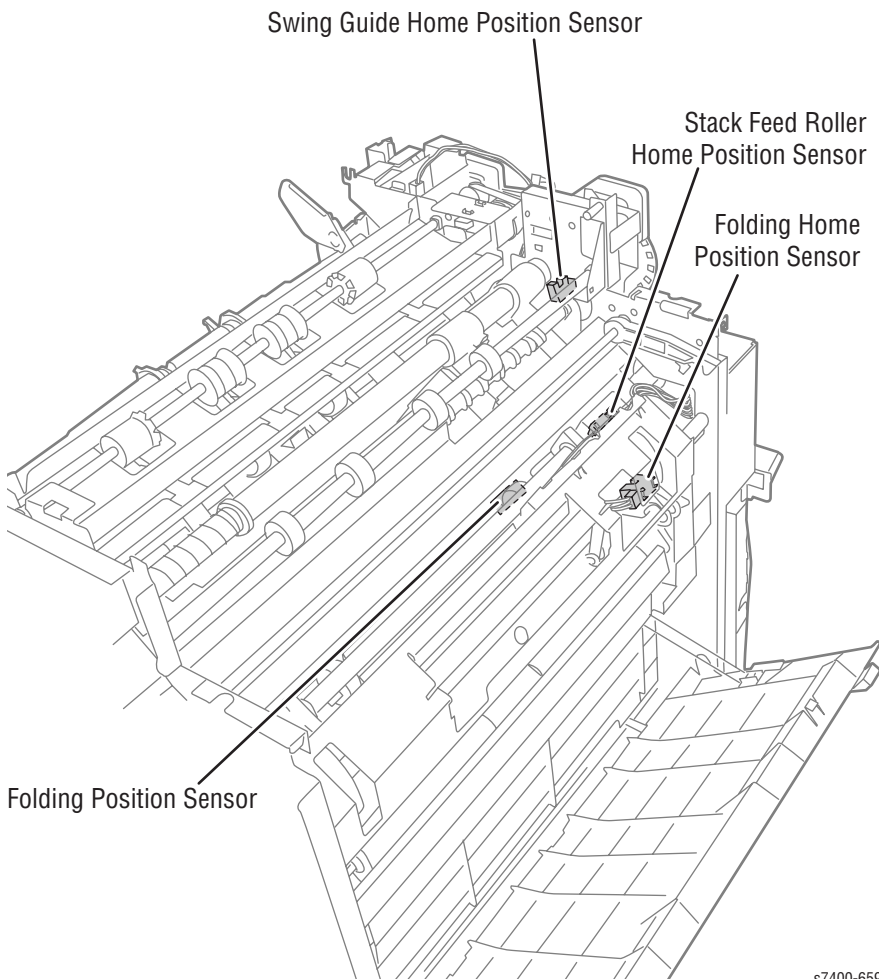
6. Disconnect the connector to remove the Waste-full Sensor Board.



# Swing Guide Home Position Sensor

The Swing Guide Home Position Sensor detects the home position for the Swing Guide. To remove the sensor.

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Remove the Upper Cover (page 5-13).
4. Remove two screws (metal, 6 mm) and remove the swing guide cover.
5. Locate the sensor (see illustration) and disconnect connector CN41.



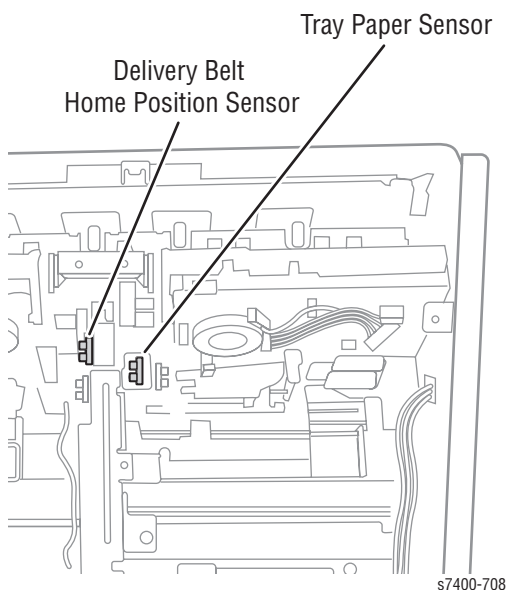
s7400-659

6. To remove the sensor, pinch the plastic tabs with needle nose pliers, and then pull the sensor free.

## Delivery Belt Home Position Sensor

The Delivery Belt Home Position Sensor detects the end location of the delivery rollers (sensor is off). To remove and replace the Delivery Belt Home Position Sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the Side Guide (page 5-107).
6. To locate the sensor, manually rotate the delivery roller belts. You will see the activator (which is attached to the belt) trip the sensor.



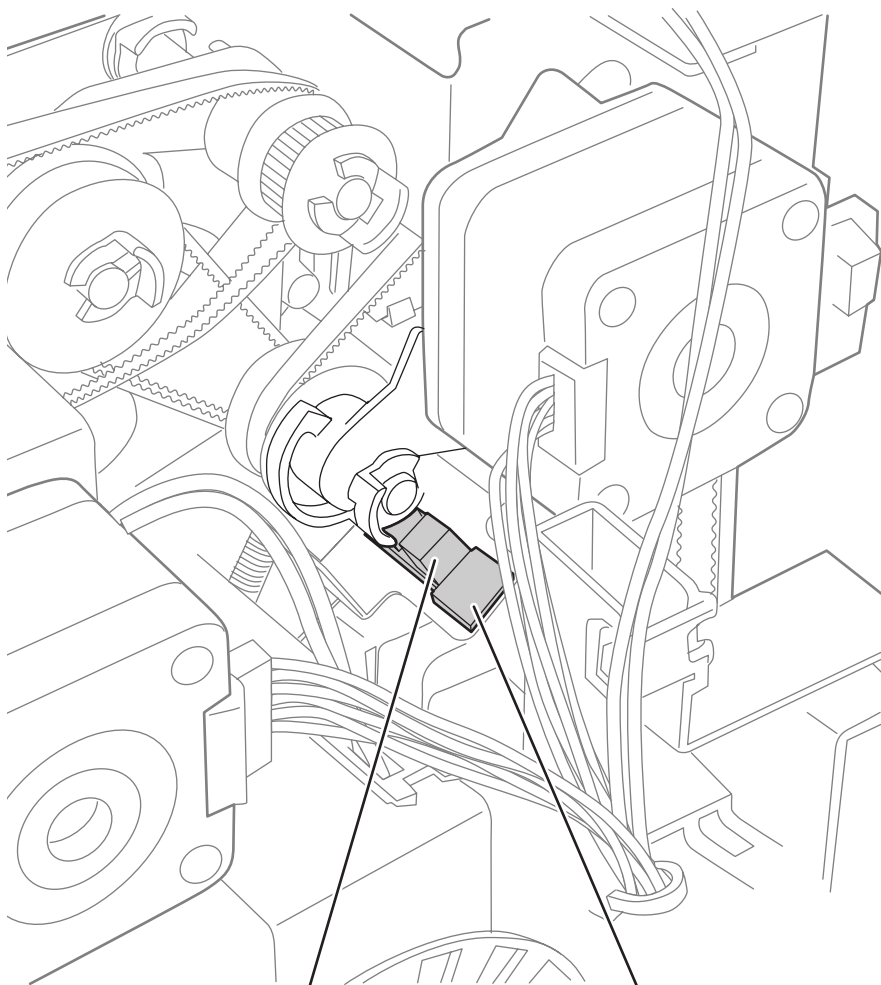
7. To remove the sensor, first remove the 4-wire connector CN31 from the sensor. Using small needle nose pliers, pinch the plastic tabs to pull one side of the sensor free.



## Paddle Home Position Sensor

The Paddle Home Position Sensor detects when it is necessary to drive the paddle and feed the next sheet of paper. To remove the sensor.

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Locate the sensor (see illustration) and disconnect connector CN39.



Paddle Home Position Sensor

CN39

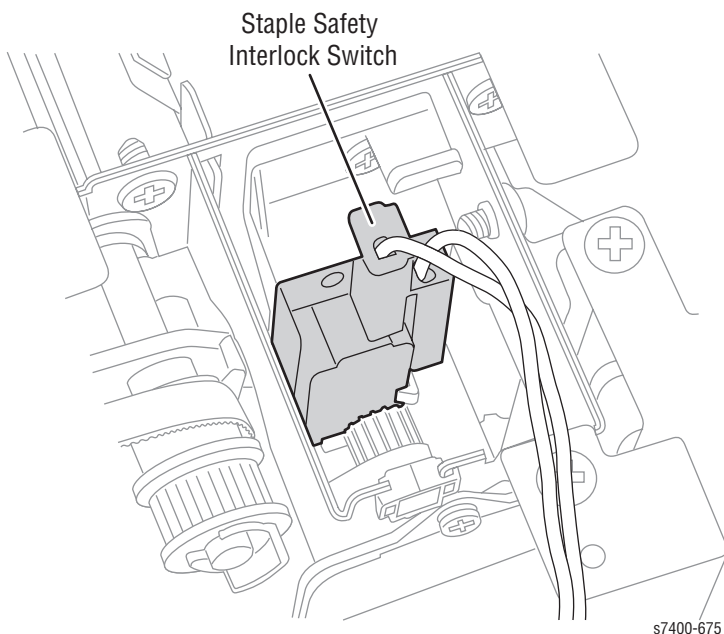
s7400-665

4. To remove the sensor, pinch the plastic tabs with needle nose pliers, and then pull the sensor free.

## Stapler Safety Interlock Switch

The Stapler Safety Interlock Switch protects current overloads in case of a staple jam. This switch will open to remove voltage from the stapler unit. To remove and replace the switch:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Locate the Paddle Motor and Staple Safety Switch (see illustration).

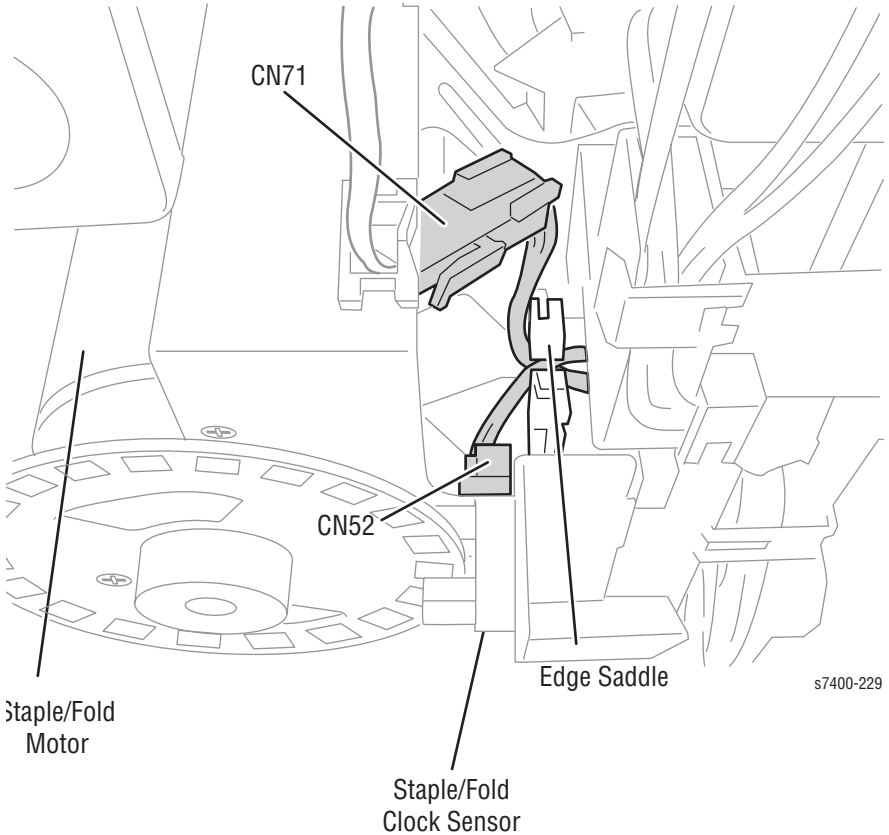


6. Slide the small belt from the Paddle Motor.
7. Remove two screws (metal, 6 mm) and washers from the motor casing and pull the motor away from the chassis so that you have access to the switch.
8. Lift connector CN66 off of the two connector pins. You may need to free the two wires from the cable harness.
9. Remove the single screw (metal, 6 mm) holding the switch to the chassis.
10. To remove the switch, release the three plastic hooks securing the switch to the plastic.

# Staple/Fold Clock Sensor

The Staple/Fold Clock Sensor counts timing pulses during staple and fold operations. To remove the sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Rear Cover (page 5-11).
3. Locate the sensor (see illustration) and disconnect connector CN52.

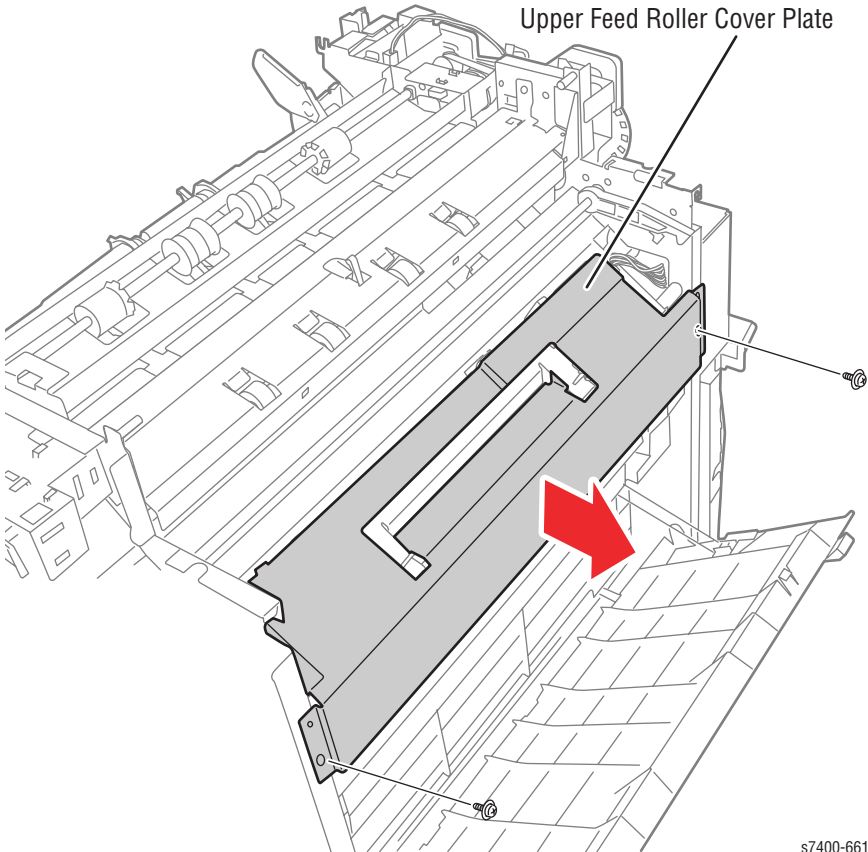


4. To remove the sensor, pinch the plastic tabs with needle nose pliers, and then pull the sensor free.

# Folding Home Position Sensor

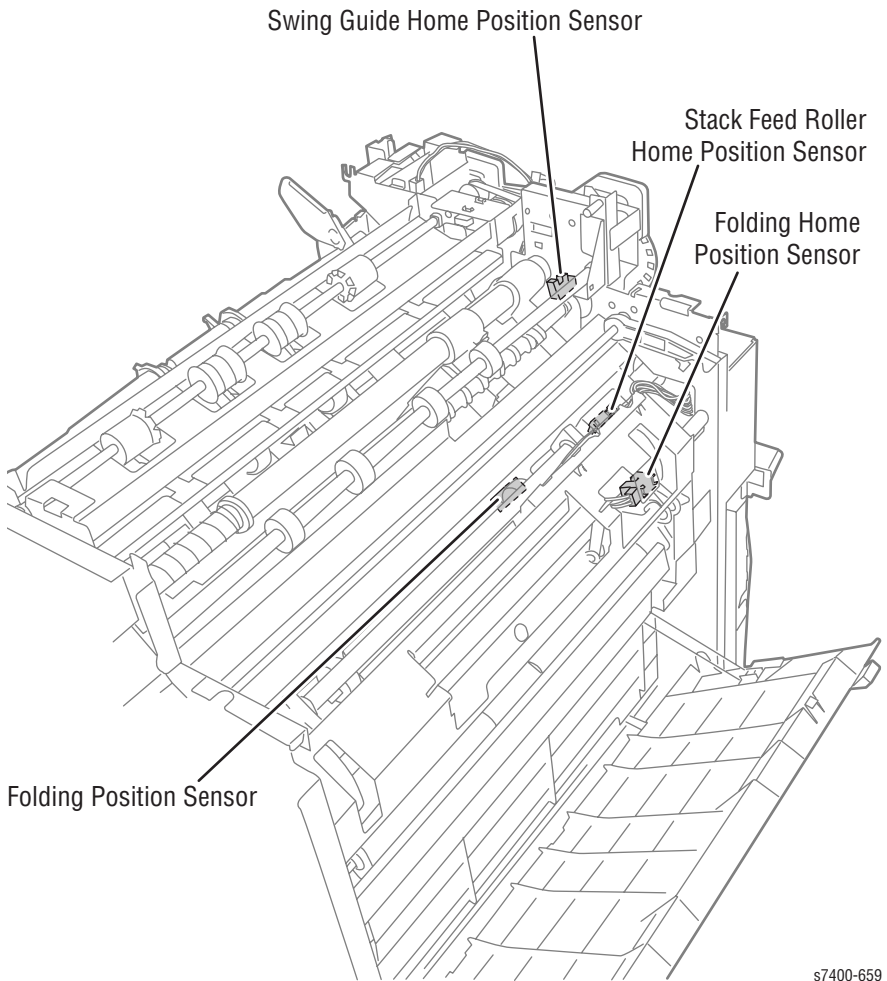
The Folding Home Position Sensor detects the positions of the paper fold rollers and the paper pushing plate. To remove and replace the sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the Side Guide (page 5-107).
6. Remove the metal cover plate to expose the sensor.



s7400-661

- 7.** Locate the sensor (see illustration).



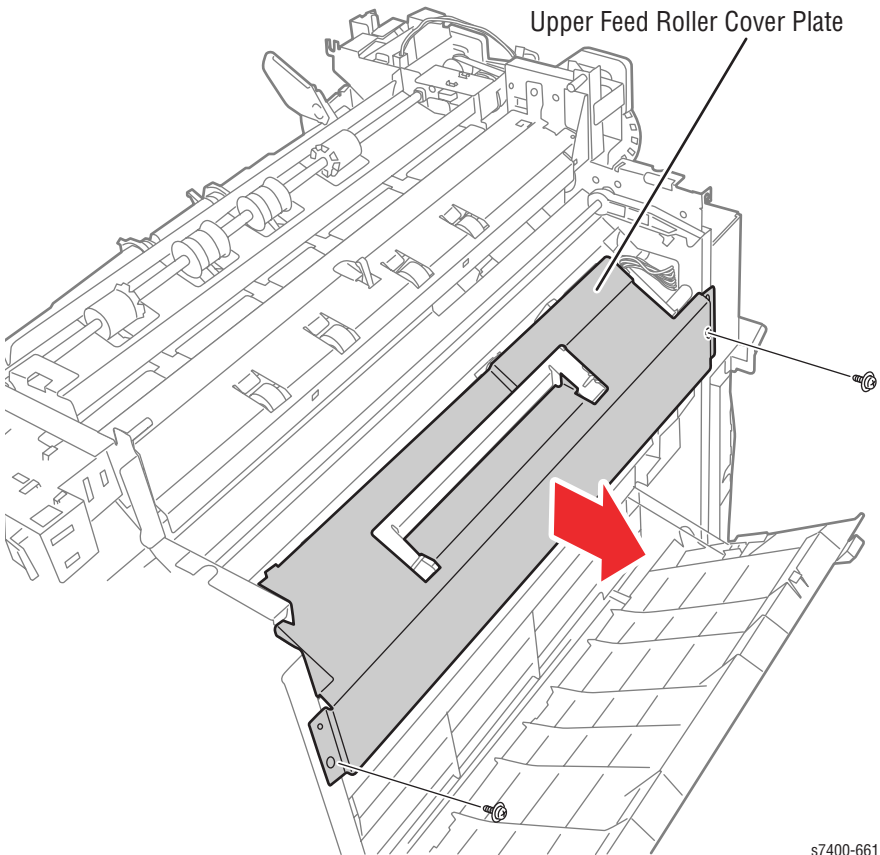
s7400-659

- 8.** To remove the sensor, disconnect CN40 from the sensor, remove one screw (metal, 4 mm), and then pull the sensor free.

# Folding Position Sensor

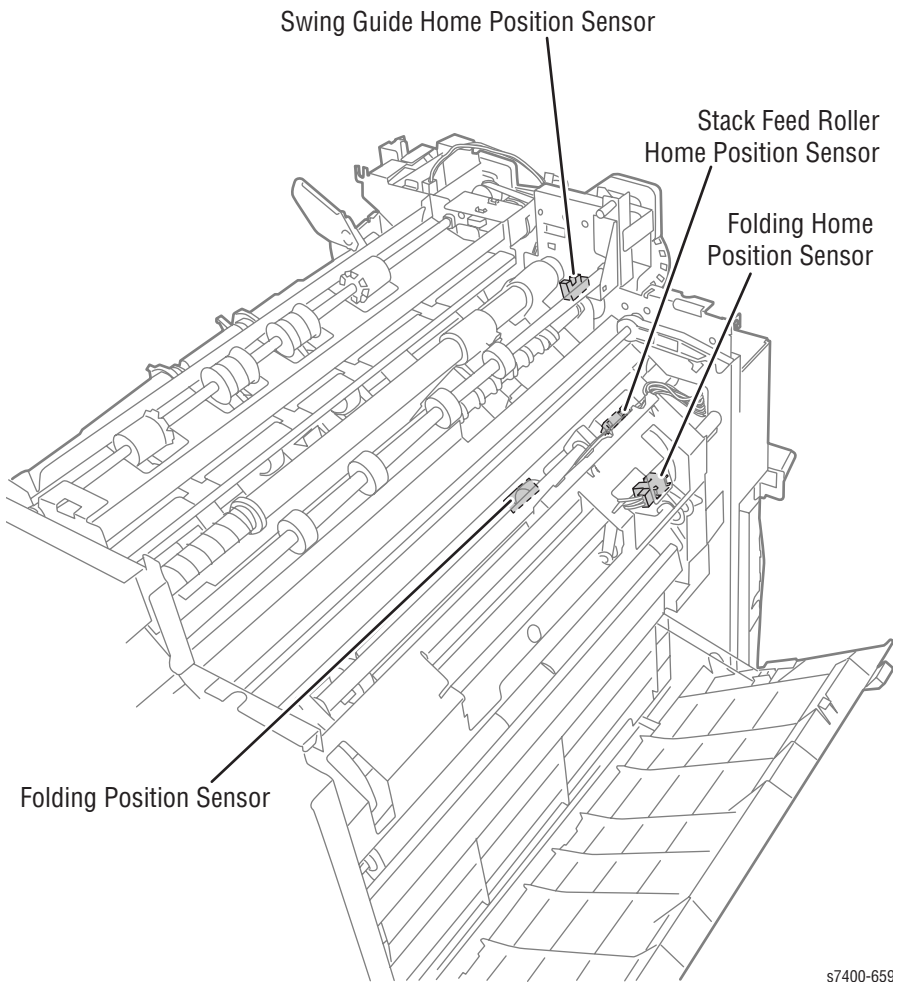
The Folding Position Sensor detects the leading edge of the paper stack. To remove and replace the sensor:

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. Remove the Upper Cover (page 5-13).
5. Remove the metal cover plate to expose the sensor.



s7400-661

6. Locate the sensor (see illustration).

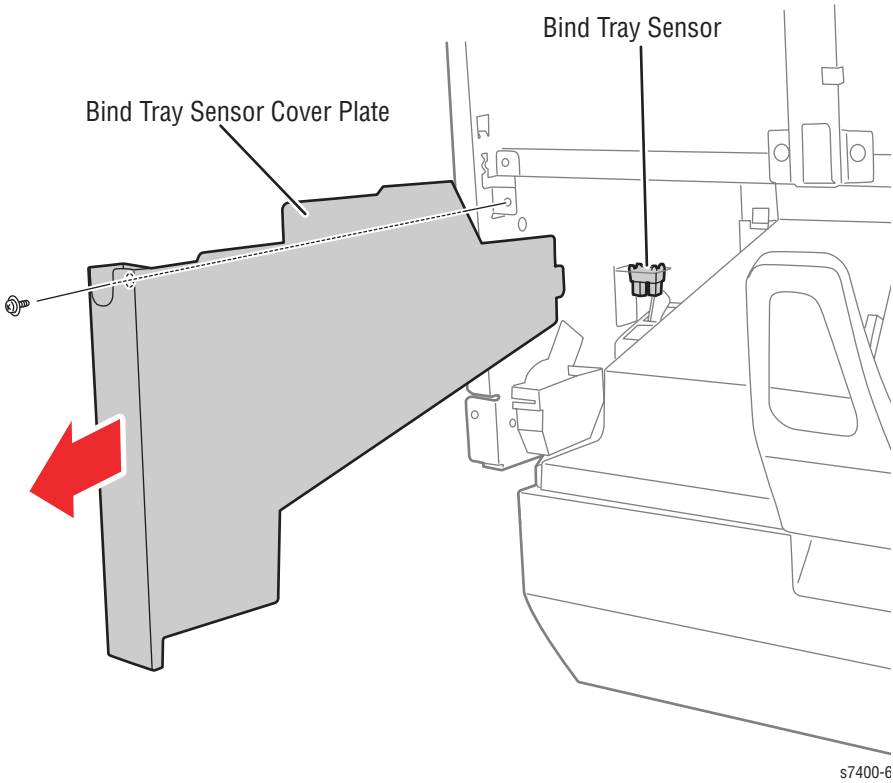


7. To remove the sensor, disconnect CN40 from the sensor, remove one screw (metal, 4 mm), and then pull the sensor free.

# Bind Tray Sensor

The Bind Tray Sensor detects when paper is present in the Saddle Unit's bind tray. To remove and replace the sensor:

- 1. Remove the Paper Exit Tray (page 5-7).
- 2. Remove the Front Door (page 5-8).
- 3. Remove the Rear Cover (page 5-11).
- 4. Remove the Upper Cover (page 5-13).
- 5. Remove the Side Guide (page 5-107).
- 6. Remove the Bind Tray Sensor Cover (see illustration).

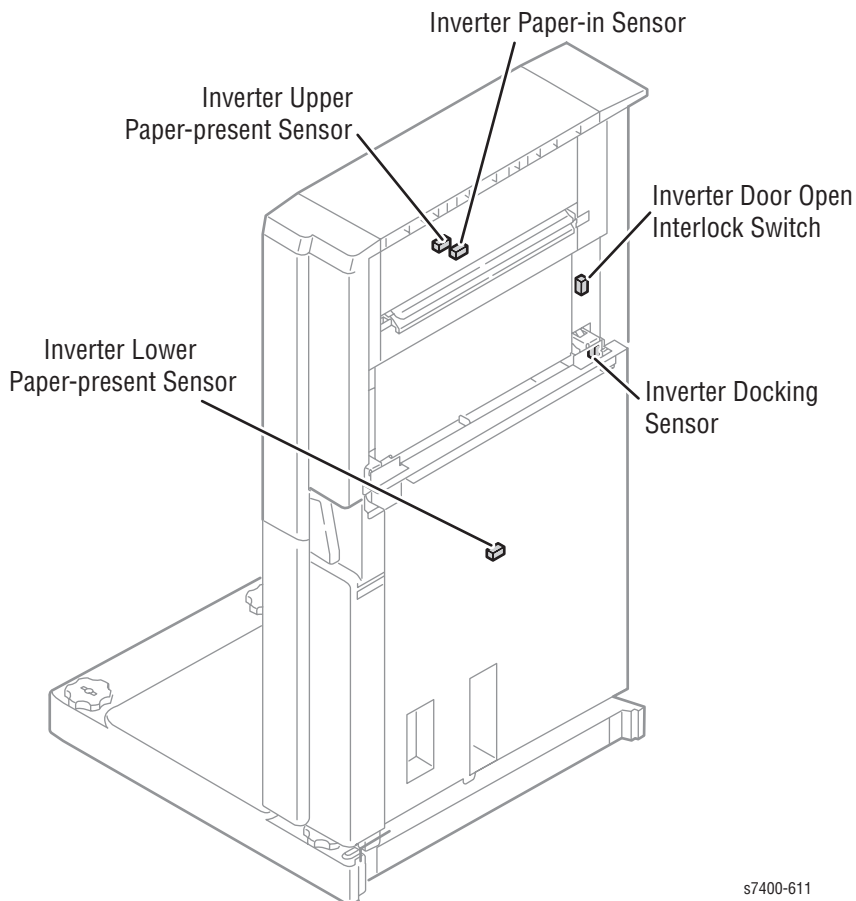


- 7. To remove the Bind Tray Sensor, first remove the 4-wire connector CN47 from the sensor, and then pinch the plastic tabs to pull the sensor free.



# Inverter Sensors and Switches

The following illustration shows the general location of the Inverter sensors. The topics in this section describe the disassembly for each sensor.

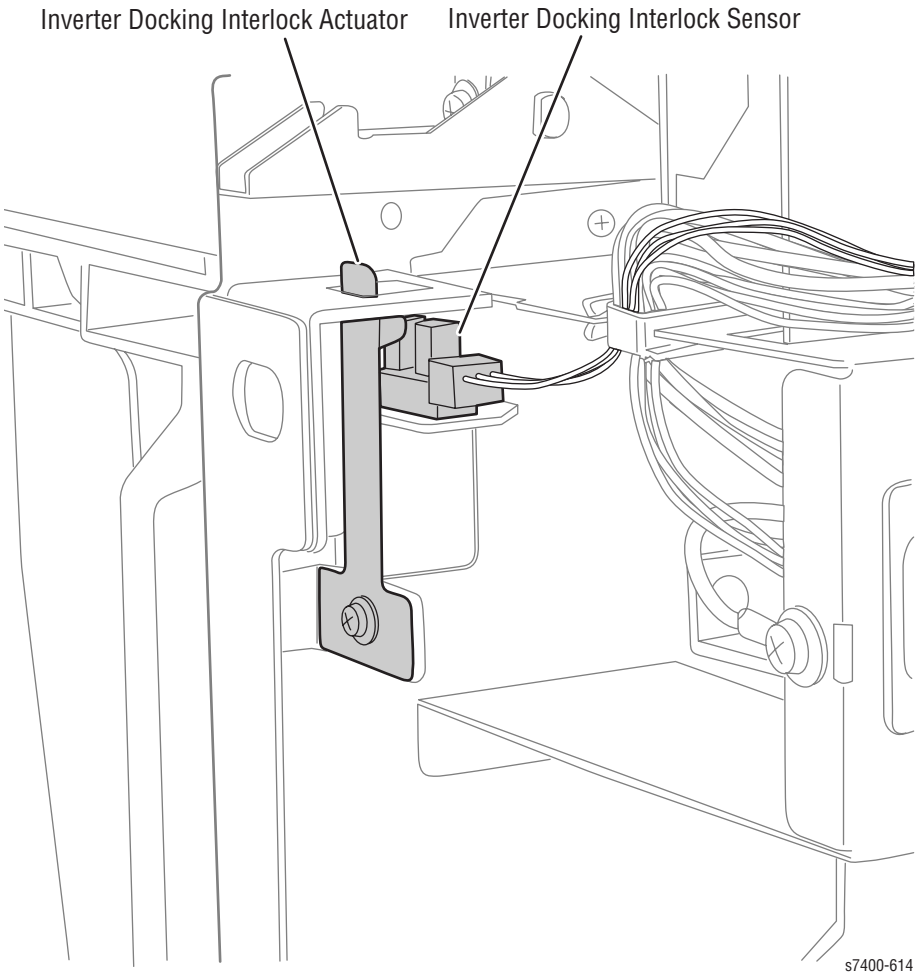


s7400-611

# Inverter Docking Sensor

The Inverter Docking Sensor detects when the Inverter interconnects with the Printer. To remove the sensor:

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Disconnect the 3-wire cable from the connector (SNSCN1) at the Inverter Controller Board.
4. Free the cable from the cable harness.
5. Remove single screw (self-tapping, plastic 10 mm) and open Door I to expose the sensor.
6. Pinch the plastic hooks on the interlock switch to remove the switch from the chassis.

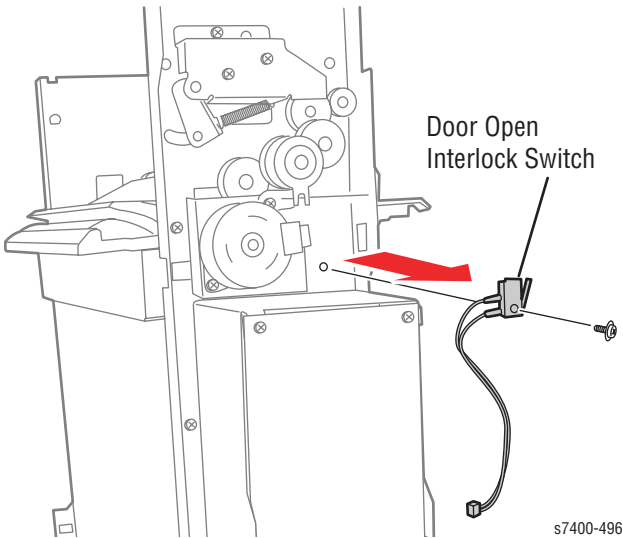


s7400-614

# Inverter Door (Door F) Open Interlock Switch

The Inverter Door Open Interlock Switch detects when the Inverter Door (F) is open. To remove the switch:

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Rear Covers (page 5-19).
3. Remove the Top Cover (page 5-23).
4. Disconnect the 2-wire cable from the connector (SNSCN2) at the Inverter Controller Board.
5. Free the cable from the cable harness.
6. Remove a single small metal screw (metal, 4 mm) and remove the switch.



# Inverter Upper Paper-Present Sensor

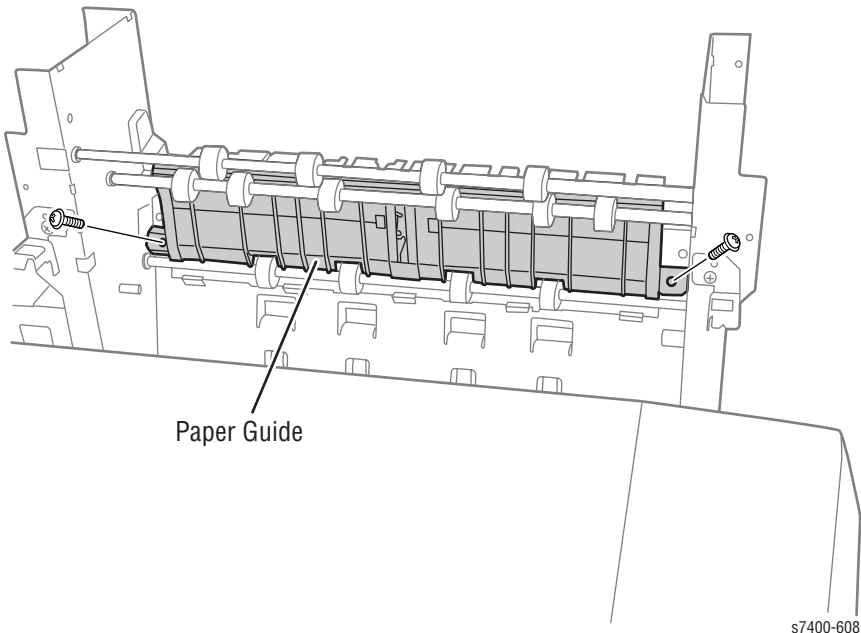
The Inverter Upper Paper-Present Sensor detects the leading edge of the selected paper size. To remove the sensor:

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Front Covers (page 5-17).
3. Remove the Inverter Rear Covers (page 5-19).
4. Remove the Top Cover (page 5-23).
5. Open Door F to expose the screws (metal flange, 6 mm) to the top paper guide and the Upper Paper-Present Actuator.
6. Disconnect the 3-wire cable from the actuator.

## Note

The other end of this cable connects to connector (SNSCN0) on the Inverter Controller Board.

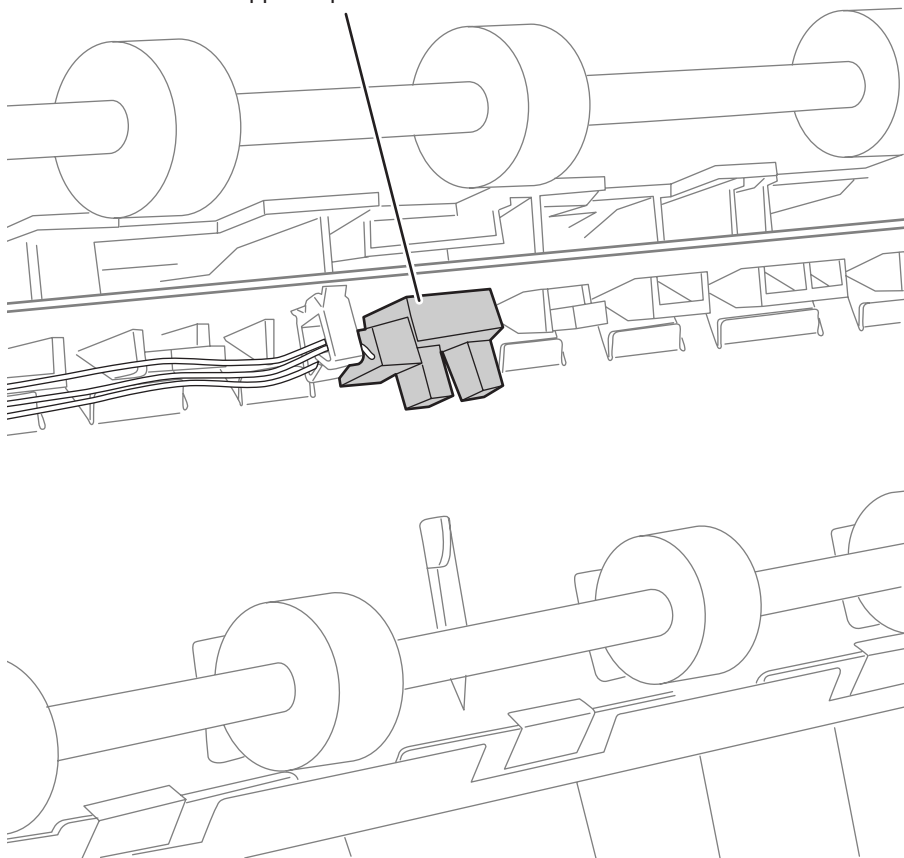
7. Free the cable from the cable harness near the paper guide.
8. Remove two screws (metal flange, 6 mm) holding the top paper guide to the lower paper guide, and then remove the top paper guide.
9. To remove the actuator from the top paper guide, pinch the plastic release tab to free the actuator.
10. To remove the Upper Paper-Present Sensor, pull the connector off the sensor, pinch the plastic hooks together, and push the sensor free from the chassis.



s7400-608

11. To remove the Upper Paper-Present Sensor, pull the connector off the sensor, pinch the plastic hooks together, and push the sensor free from the chassis.

Inverter Upper Paper Present Sensor



s7400-615

## Inverter Lower Paper-Present Sensor

The Inverter Lower Paper-Present Sensor detects the trailing edge of the selected paper size. To remove the sensor:

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Front Covers (page 5-17).
3. Remove the Inverter Rear Covers (page 5-19).
4. Remove the Top Cover (page 5-23).
5. Remove the Inverter Controller Board (page 5-55).
6. Remove the Inverter Power Supply Board (page 5-56).

### Note

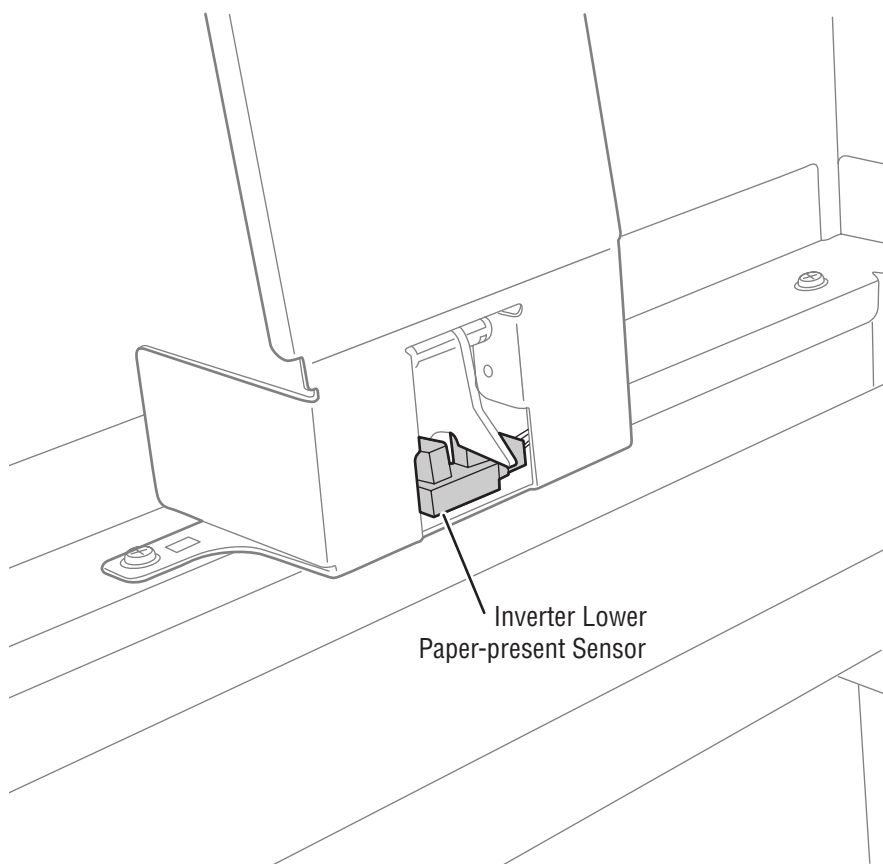
Both Inverter boards must be removed in order to access one of the side screws in the metal plate.

7. Remove seven screws (metal flange, 6 mm) from the front metal cover plate; one from each side near the top, and five from the front of the plate.
8. Slide the front metal plate away from the chassis to expose the Lower Paper-Present Actuator.
9. Disconnect the 3-wire cable from the actuator.

### Note

The other end of this cable connects to connector (SNSCN0) on the Inverter Controller Board.

- 10.** To remove the actuator from the top paper guide, pinch the plastic release tab to free the actuator.



s7400-607

# Inverter Paper-in Sensor

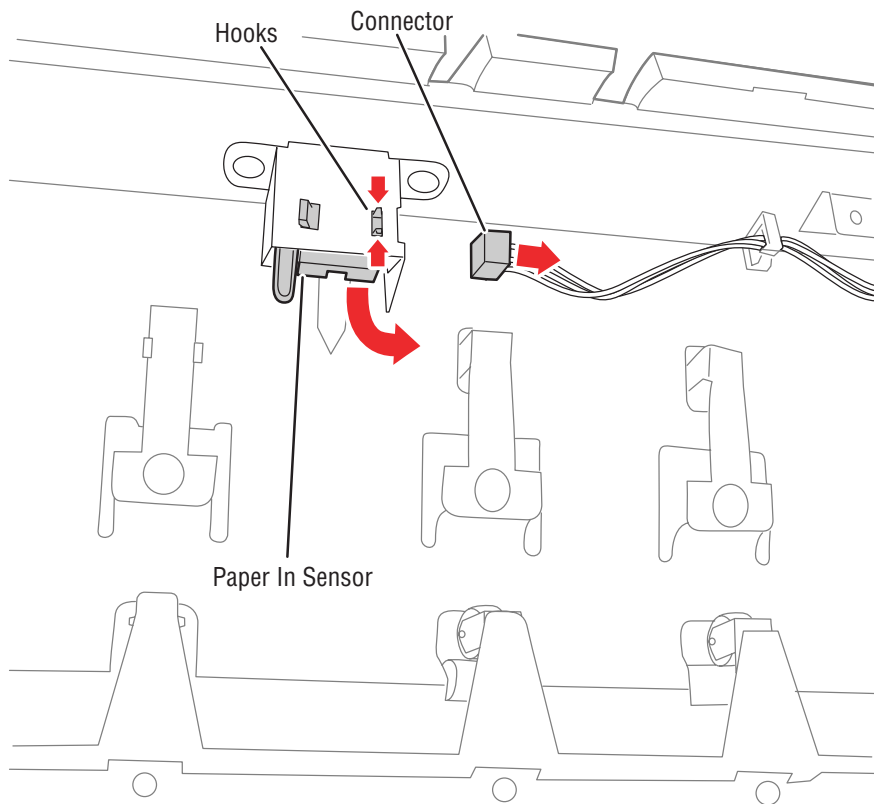
The Inverter Paper-in Sensor detects the presence of media in the Inverter. To remove the sensor:

1. Remove the Inverter and base unit from the Finisher (page 5-5).
2. Remove the Inverter Front Covers (page 5-17).
3. Remove the Inverter Rear Covers (page 5-19).
4. Remove the Top Cover (page 5-23).
5. Remove six screws (metal flange, 6 mm) from the actuator cover metal plate.
6. Disconnect the 3-wire connector at the actuator location.

## Note

The other end of this cable connects to connector (SNSCN0) on the Inverter Controller Board.

7. Pinch the plastic hooks together to free the actuator from the metal support case, then pinch the plastic tab to pull the actuator free from the chassis.

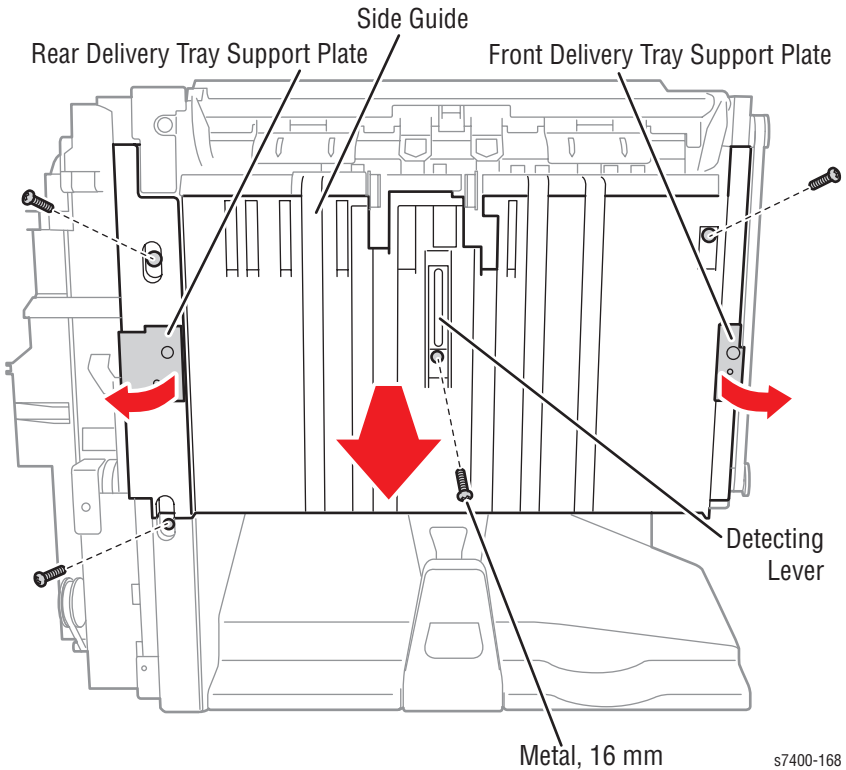




# Guides and Rollers

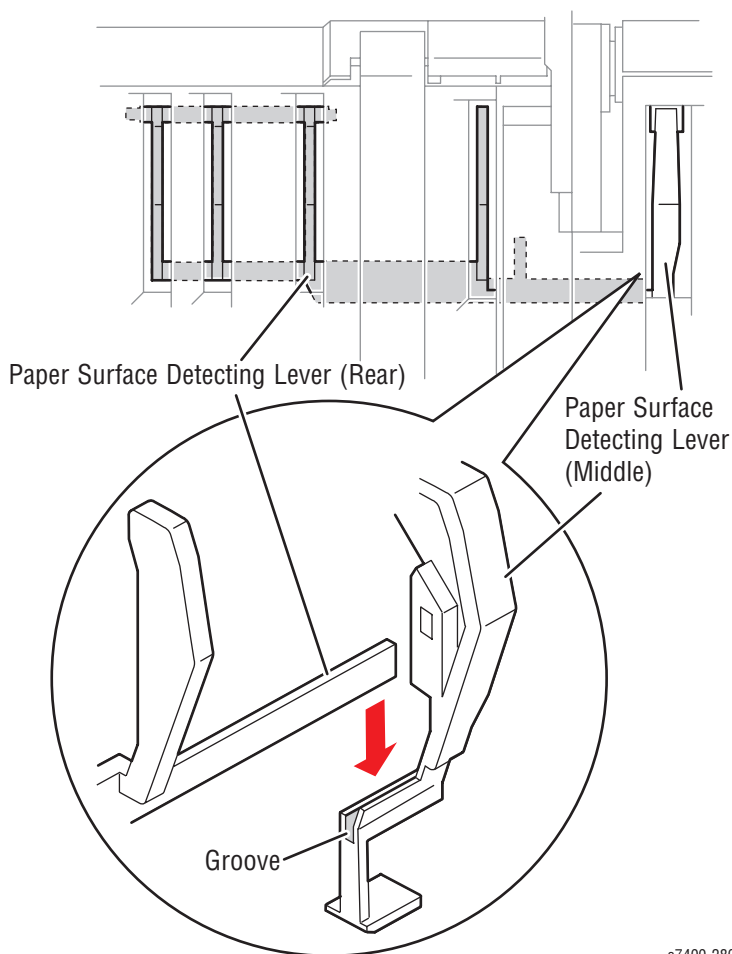
## Side Guide

1. Remove the Paper Exit Tray (page 5-7).
2. Remove the Front Door (page 5-8).
3. Remove the Rear Cover (page 5-11).
4. While gently holding the Rear Delivery Tray Support Plate (and track) to the side, remove three screws (metal, 10 mm) and one specialty screw (metal, 16 mm), from the Side Guide.
5. Pull the Side Guide slightly away from the Finisher.



s7400-168

6. Twist the guide slightly clockwise, free the engagement of the paper surface detecting lever (rear), and then remove the guide.



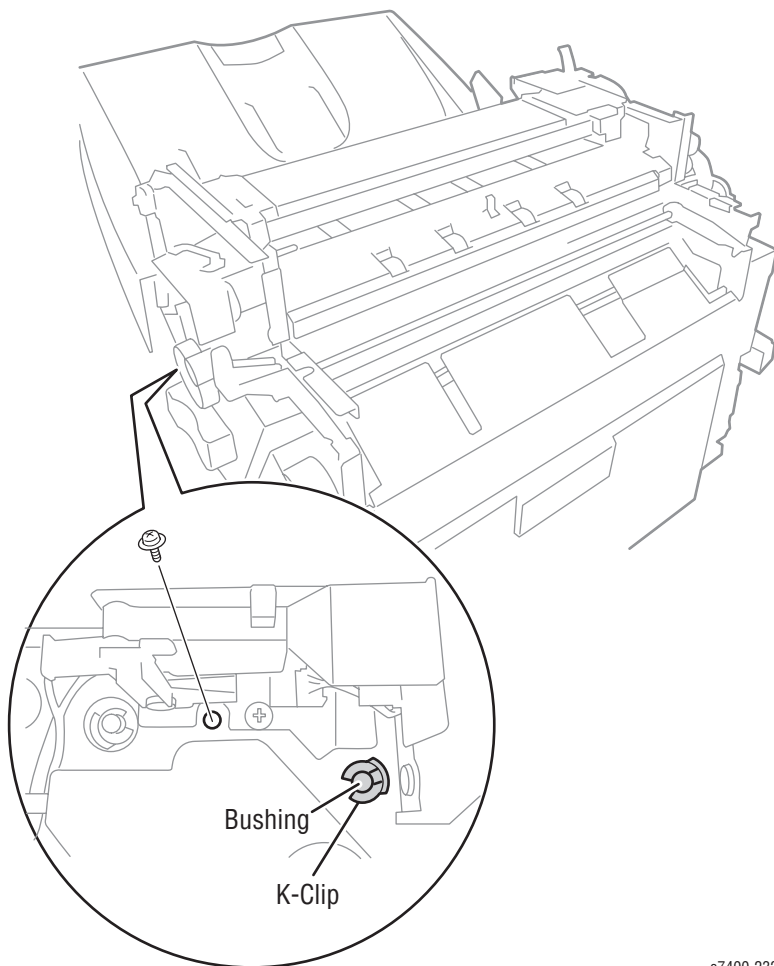
s7400-280

### Replacement Note

Be sure to insert the paper detecting lever in the groove of the paper surface. After completion of mounting, activate the paper detecting lever several times to make sure that side guide is mounted securely.

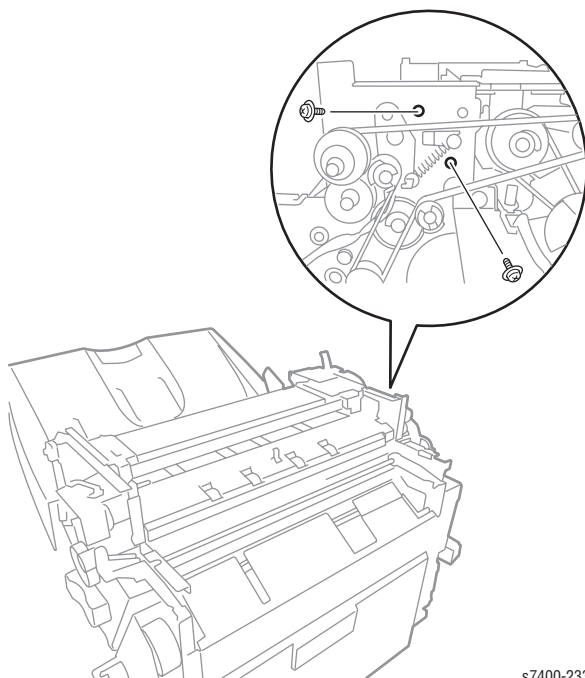
## Feed Roller

1. Remove the Upper Cover (page 5-13).
2. Remove the Upper Right Cover Assembly (page 5-37).
3. Remove the Feed Motor Unit (page 5-62).
4. Remove the screw (metal flange, 6 mm).
5. Remove the stop ring, and detach the bushing.



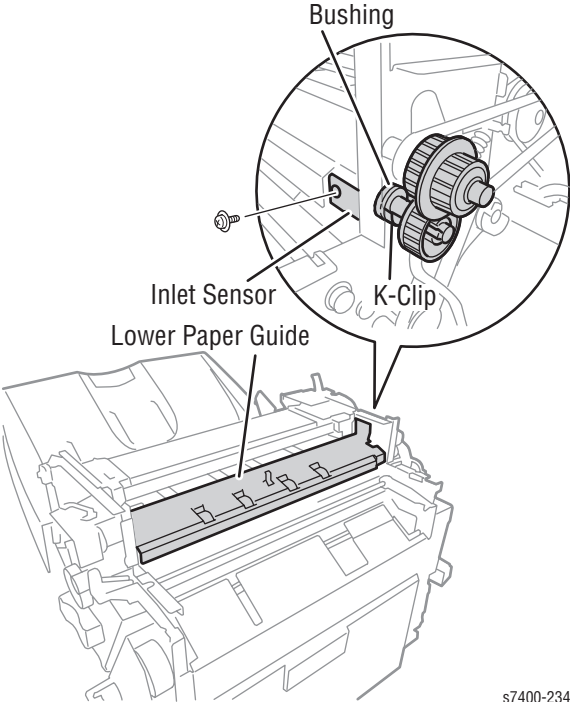
s7400-232

6. Remove the two screws (metal flange, 6 mm).
7. Remove the gear and detach the gear while releasing the latch.
8. Remove the stop ring and detach the bushing.

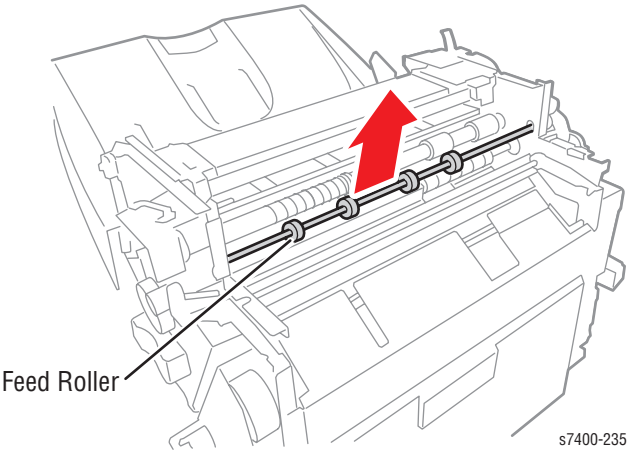


s7400-233

9. Remove the Lower Paper Guide.

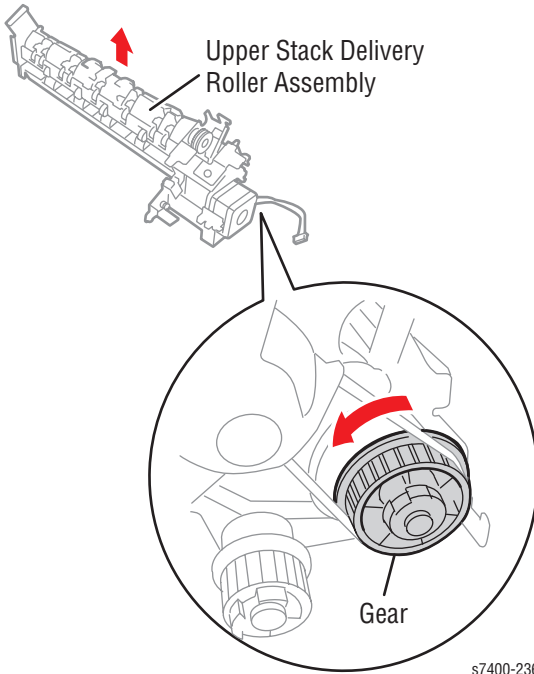


10. Remove the Feed Roller.

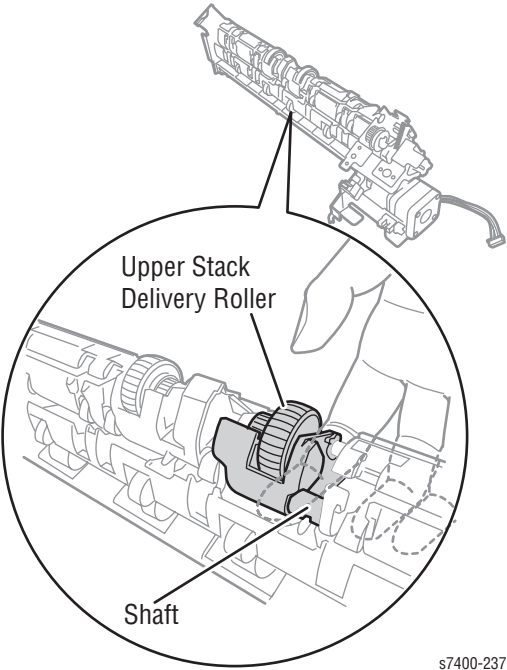


# Upper Stack Delivery Roller

1. Remove the Paddle Assembly (page 5-46).
2. Place the assembly as shown.
3. Push up the Upper Stack Delivery Roller from below to free it from the shaft.



4. Shift the roller upwards and then push down to detach.

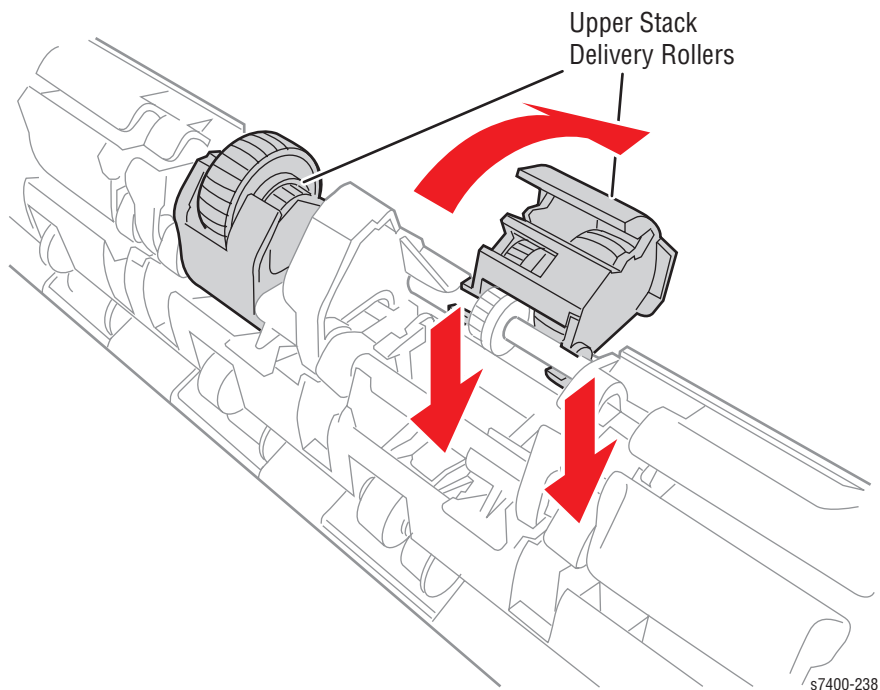


s7400-237

5. In a similar manner, remove the Upper Stack Delivery Roller at the front.

**Note**

Be careful not to lose the gear pin in the roller.

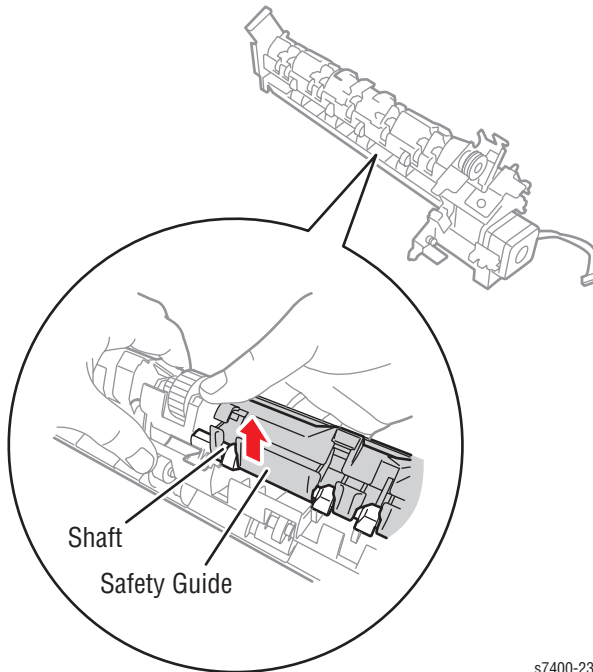


s7400-238



# Paddle

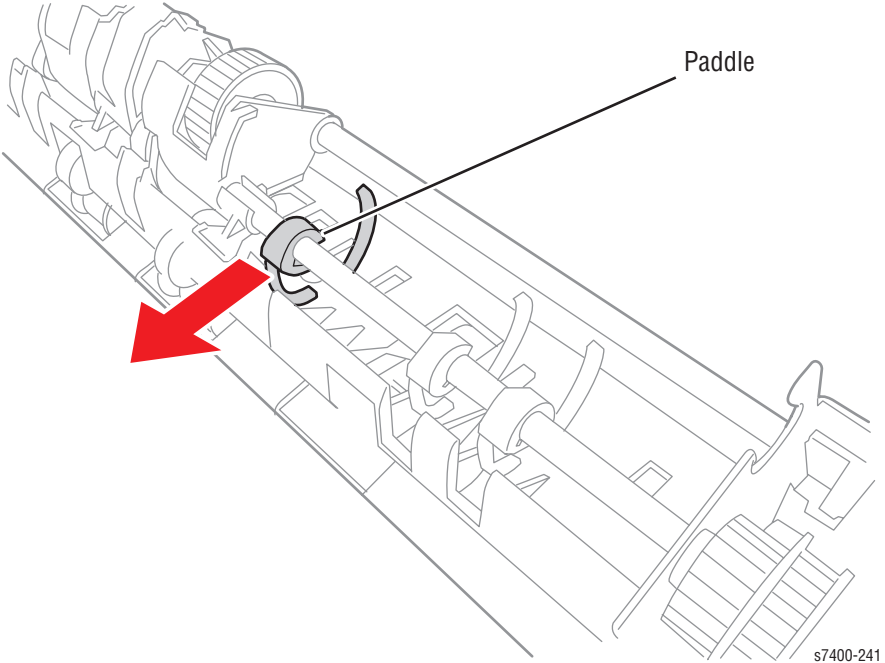
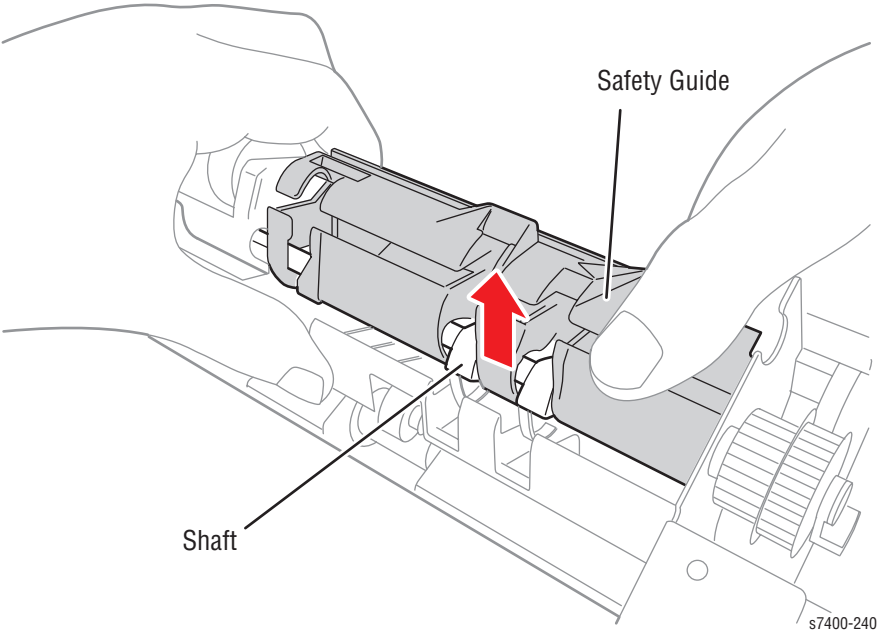
1. Remove the Paddle Assembly (page 5-46).
2. Place the assembly as shown.
3. Turn the gear in the direction of the arrow to move the upper stack delivery roller assembly upwards.
4. Push up the safety guide from below to free one side of the safety guide from the shaft.



s7400-239

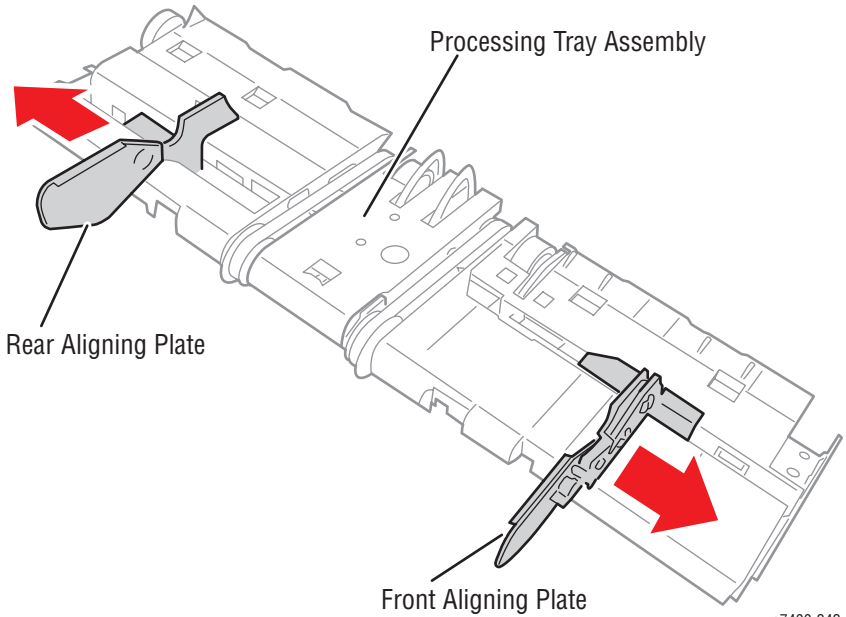
5. Push up the Safety Guide from below to free it from the shaft.

6. Remove the Paddle in the direction of the arrow (see the following illustrations).



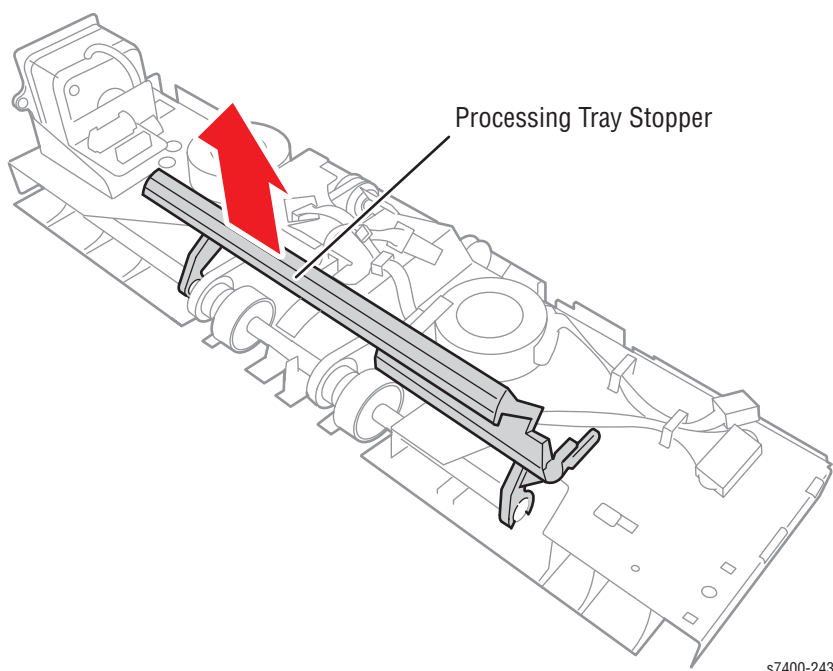
## Lower Stack Delivery Roller Belt

1. Remove the Paddle Assembly (page 5-46) and separate it from the Processing Tray Assembly.
2. Slide the front and rear tamper plate of the processing tray to the outside.
3. Remove the processing tray stopper.



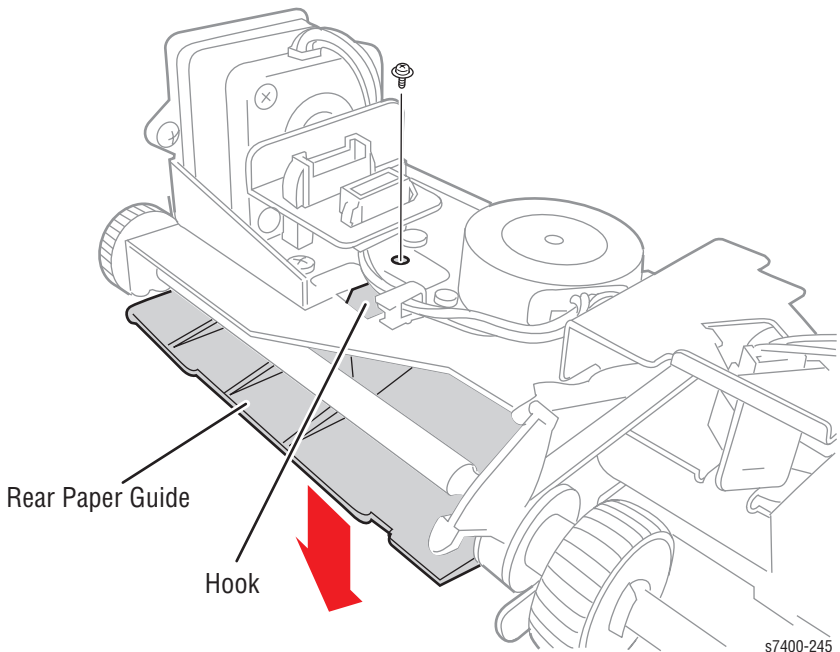
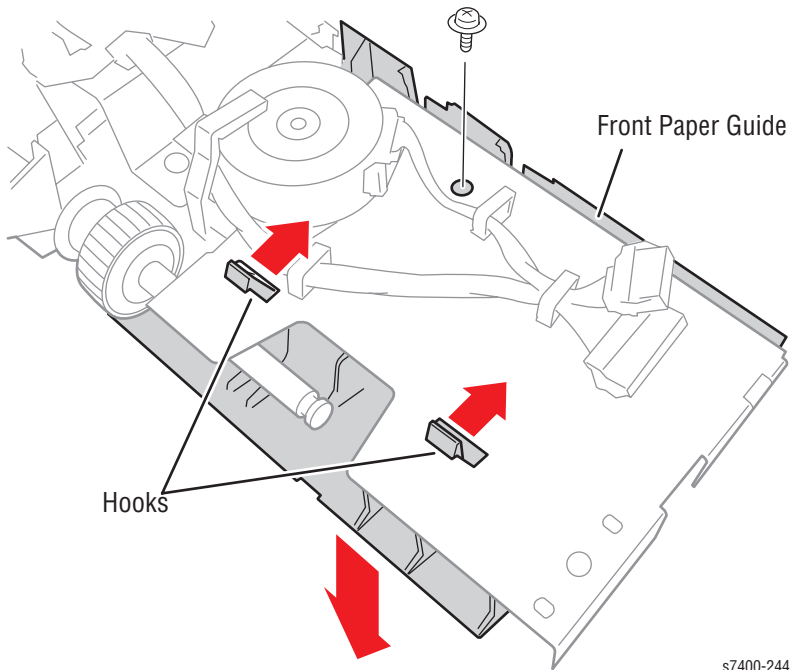
s7400-242

4. Remove the screw (metal flange, 6 mm) and detach the Front Paper Guide while freeing the two tabs.

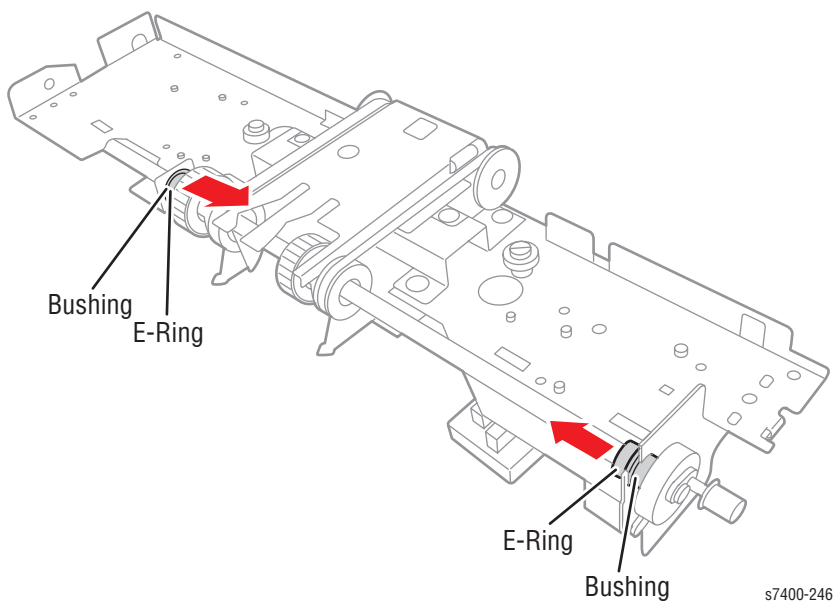


s7400-243

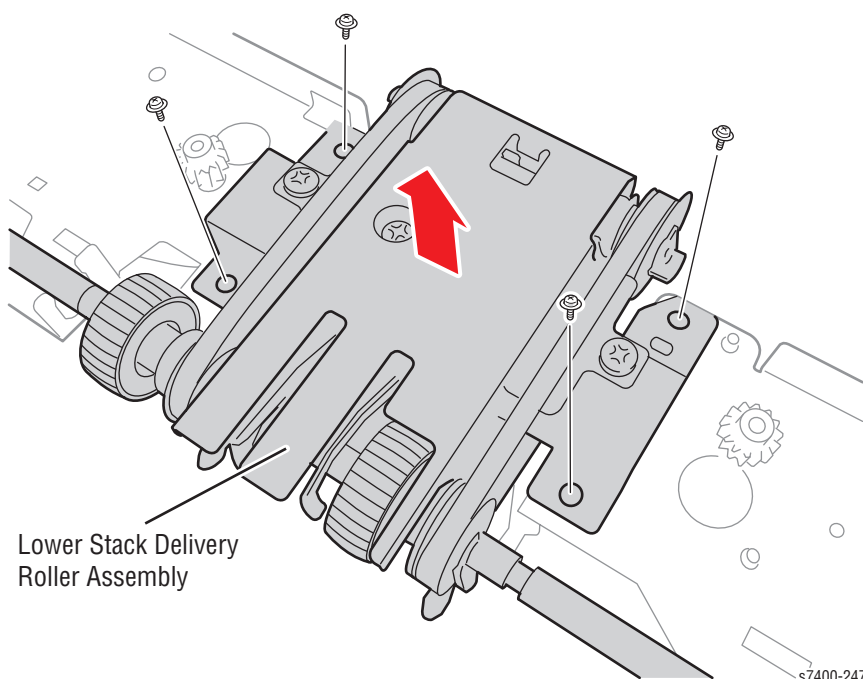
5. Remove the screw, (metal flange, 6 mm) and while freeing the tab, remove the Rear Paper Guide.



**6.** Repeat Step 5 for the Front Guide.



s7400-246



s7400-247

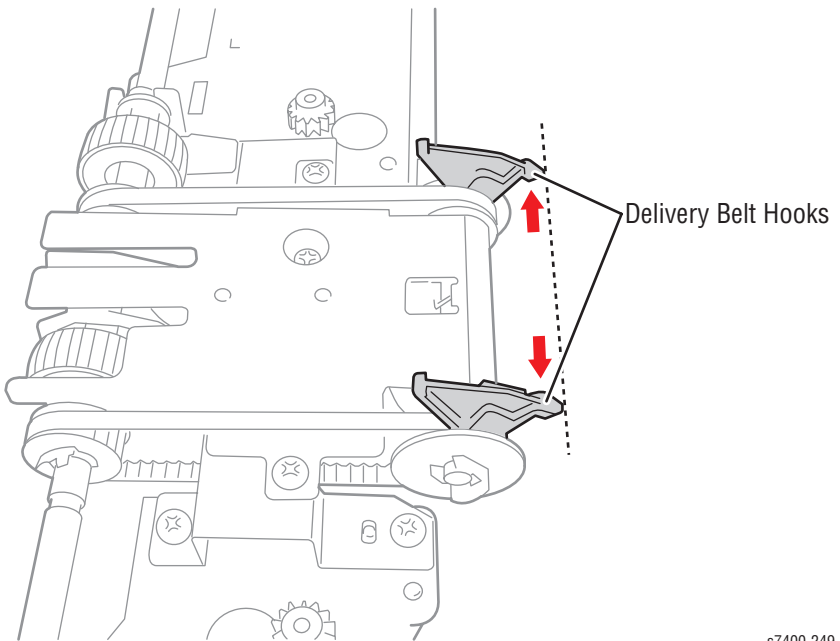
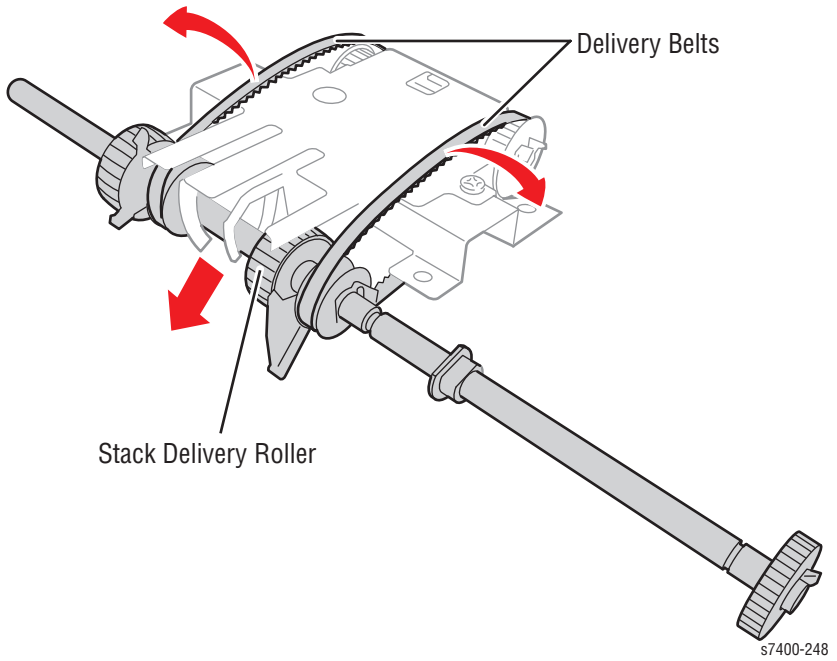
**7.** Remove the two stop rings and move the two bushings to the inside.

**8.** Remove the four screws (metal flange, 6 mm) then lift the Lower Stack Delivery Roller Assembly to detach.

9. Remove the two delivery belts.

**Note**

Be sure to mount the belts so that the edges of the claws of the belts are flush.



# Duplex Unit Disassembly

To view sensors, motors, solenoids, gears, belts, and boards in the Duplex Unit, you must first remove the following:

- Front Cover Assembly
- Bottom Plate
- Side Rails

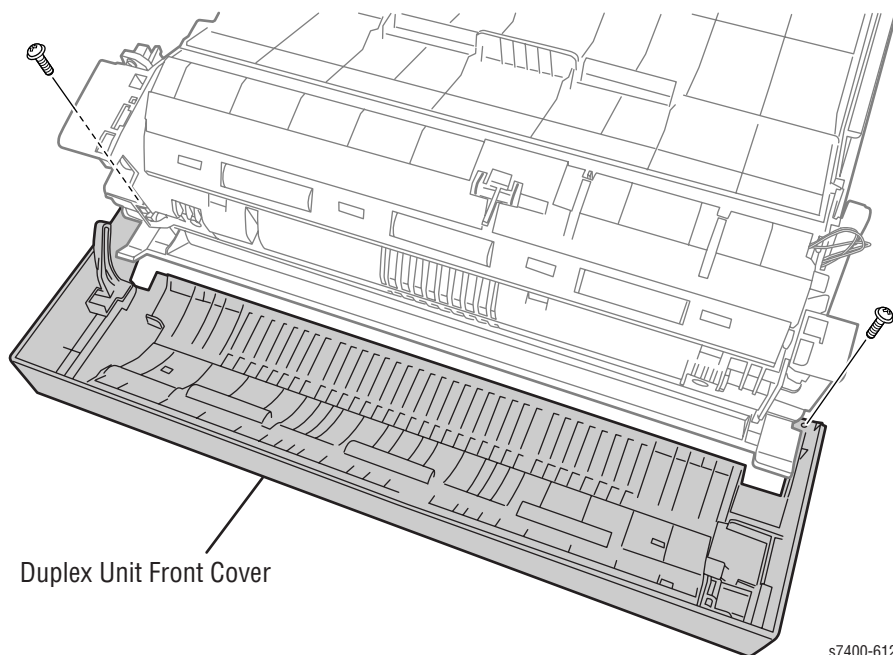
## Note

If you need to remove the Duplex Unit Controller Board for any of the following procedures, disconnect all connectors and remove one screw (self tapping, 6 mm) securing the board to the frame, and then pull free from the mounting post.

## Front Cover Assembly

From the front assembly, you can see three sensors and the connector to the Duplex Unit Controller board. To remove the Front Cover assembly:

1. Remove two screws (metal flange, 6 mm) from the front cover.



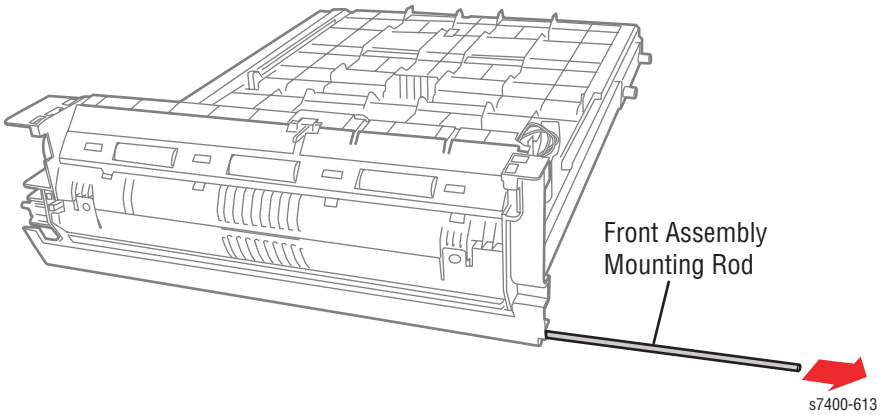
s7400-612



2. Slide the front assembly mounting rod out of the slot.

**Caution**

Be careful not to lose the retaining springs when you remove the assembly mounting rod.



3. From the remaining plastic piece, carefully loosen the plastic from the metal support bar. This exposes two support screws (metal flange, 6 mm) from the lower metal cover plate.

## Bottom Cover Plate

Removing the Bottom Cover Plate will expose the Duplex Controller Board, the fan, the two motors, five sensor switches, three belts, and the door solenoid.

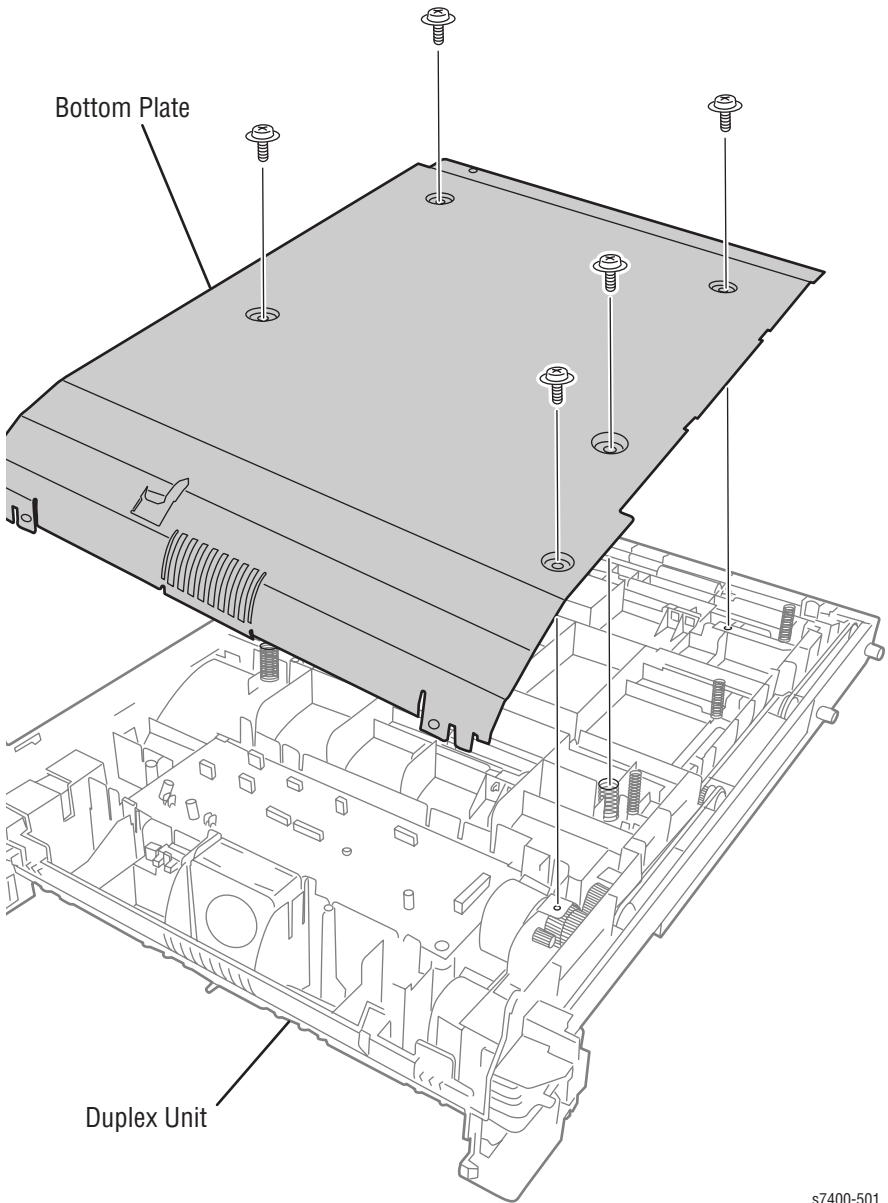
To remove the Bottom Cover Plate:

1. Remove the Front Cover Assembly (page 5-122).
2. Turn the Duplex unit over so that the bottom plate is facing up.
3. Remove four black screws (self-tapping, 10 mm) and one silver screw (metal, 10 mm) fastening the plate to the chassis.
4. From the front end of the assembly, remove two black screws (self-tapping, 10 mm) from the folded end of the bottom plate.

5. Lift the bottom plate free from the chassis.

**Caution**

Be careful to keep the unit upside down so that you do not lose any of the retaining springs from the unit

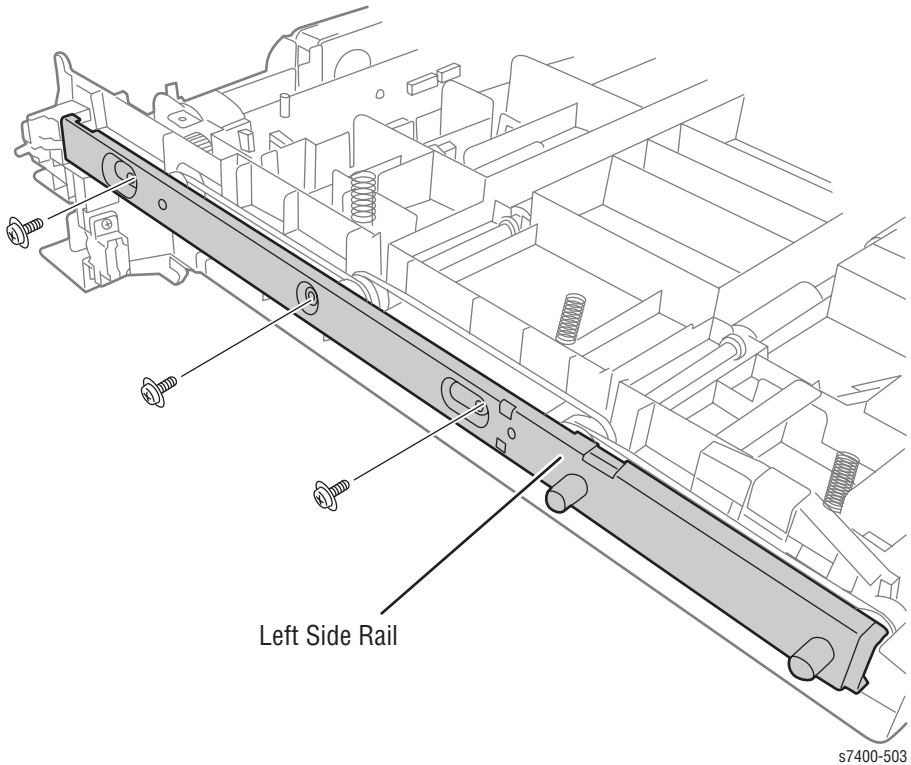


s7400-501

# Side Rails

Removing the Side Rails exposes gears, belts, and the door solenoid. To remove the belts, remove only the left side rail using the following steps:

1. Remove the Front Cover assembly (page 5-122).
2. Slide the mounting slides to the rear of the side rail.
3. Remove three screws (metal flange, 6 mm) fastening the side rail to the chassis and lift the rail free from the chassis.

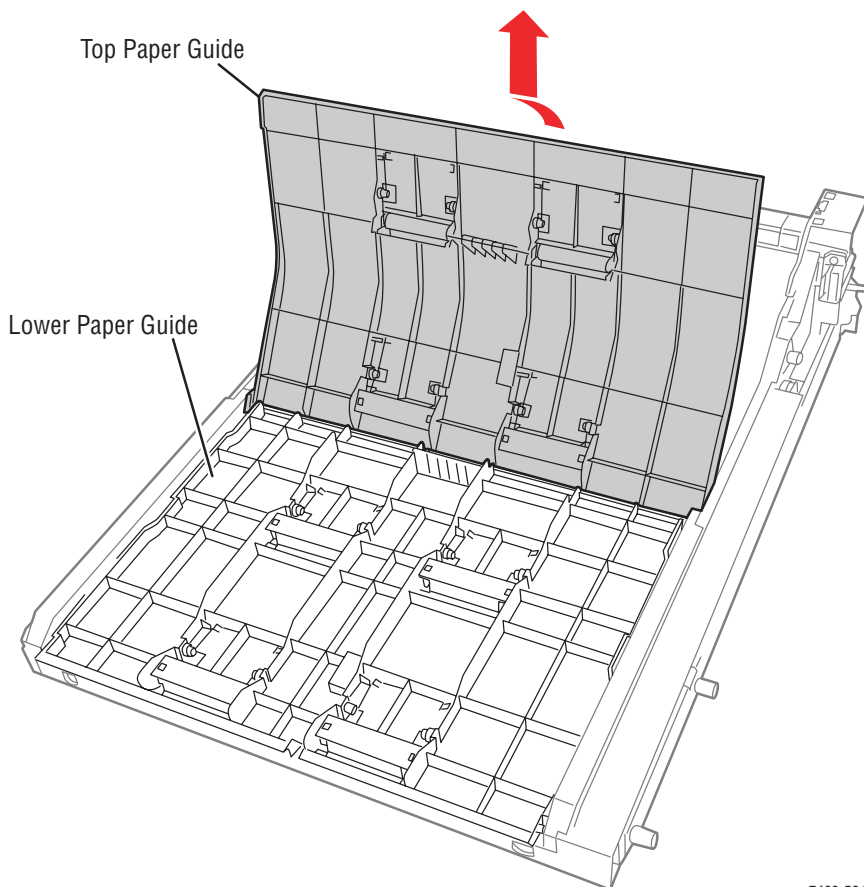


# Paper Guides

1. Remove Front Door and Cover assembly (page 5-122).
2. To remove either the Top Paper Guide or the Lower Paper Guide, lift the paper guide to the open position, loosen one end of the plastic insert, and lift away from the chassis.

## Caution

Removing any of the guides will expose paper sensors.

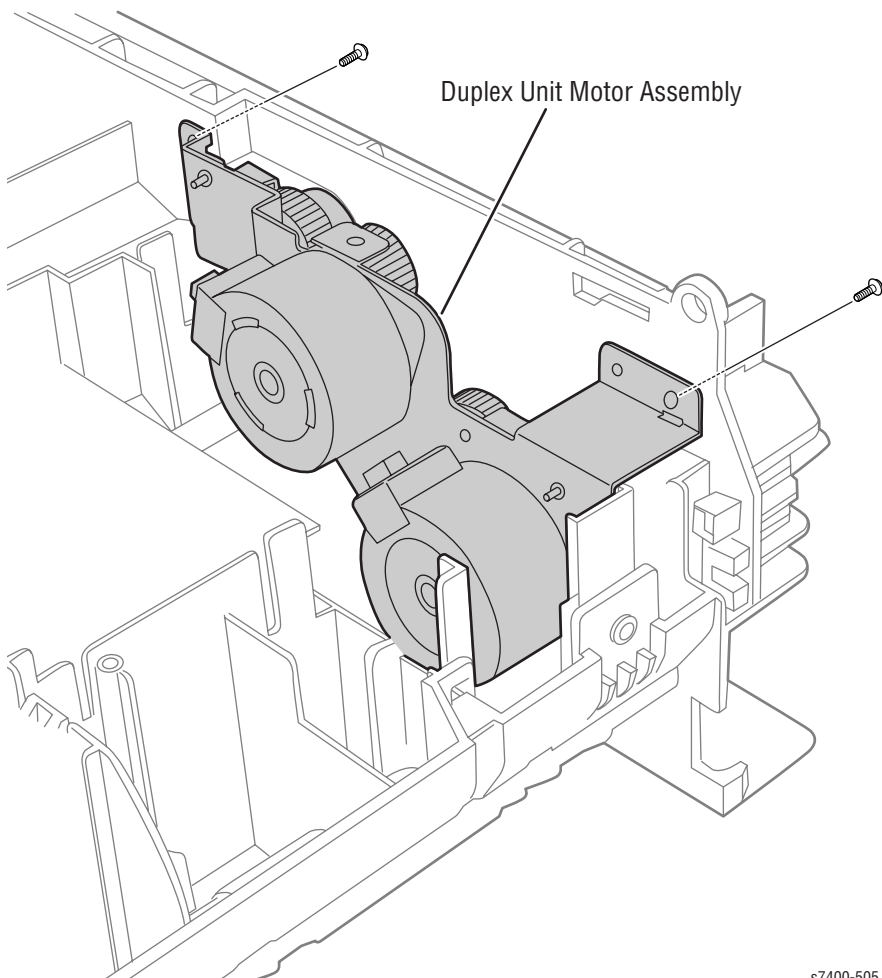


s7400-504

# Duplex Motor Assembly

Motor A and Motor B are assembled in one unit. Use the following steps to remove and replace the motor assembly:

1. Remove the Front Door and Front Cover Assembly (page 5-122).
2. Remove the right side rail (page 5-126).
3. Lift the rubber belt free from the motor gears.
4. Disconnect Motor A and Motor B connectors (Motor\_A and Motor\_B) from the Duplex Unit Controller board.
5. Remove two screws (metal flange, 6 mm) from the motor assembly (see illustration).
6. Lift the motor assembly (two motors and associated gears) from the chassis.

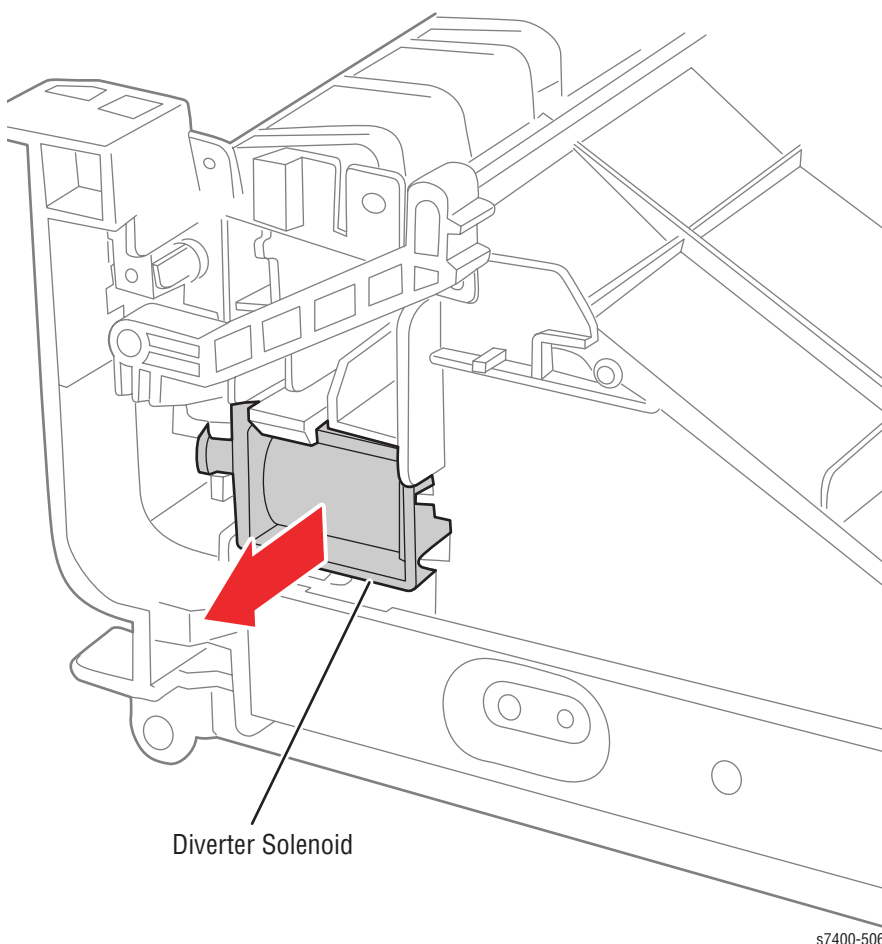


s7400-505

## Diverter Solenoid

The Diverter Solenoid re-routes the paper in the opposite direction on its paper path during duplex operation. To remove the solenoid:

1. Remove the Front Door and Front Cover Assembly (page 5-122).
2. Remove the Left Side Rail (page 5-126).
3. Disconnect the solenoid connector (CL1) from the Duplex Controller Board.
4. Remove the solenoid plastic cover.
5. Remove the single (metal flange, 6 mm) screw from the solenoid and lift the solenoid free from the chassis.



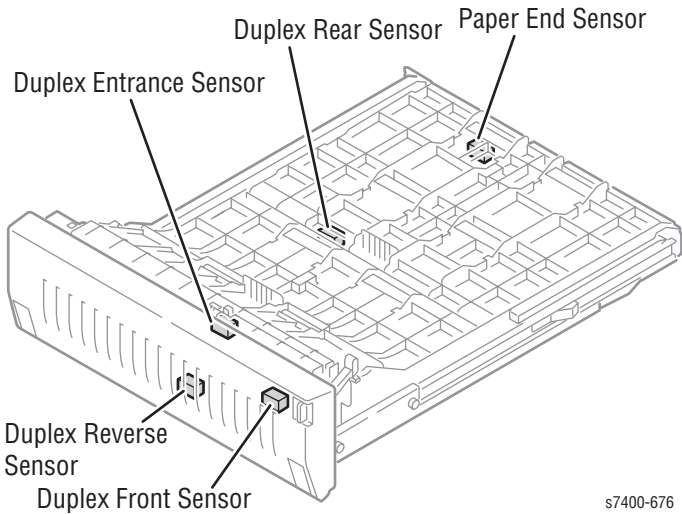
# Duplex Unit Sensors and Switches

There are a total of five sensors for the various duplex interlocks and paper paths. Refer to the sensor locator illustration to locate the appropriate sensor. To remove any of the sensors:

1. Remove the Front Cover Assembly (page 5-122).
2. Disconnect the sensor connector (either SNSCN0 or SNSCN1) from the Duplex Unit Controller Board.
3. Pinch the plastic insert pins on the connector together and lift free from the chassis.

**Caution**

Be careful not to lose any of the retainer springs.



s7400-676



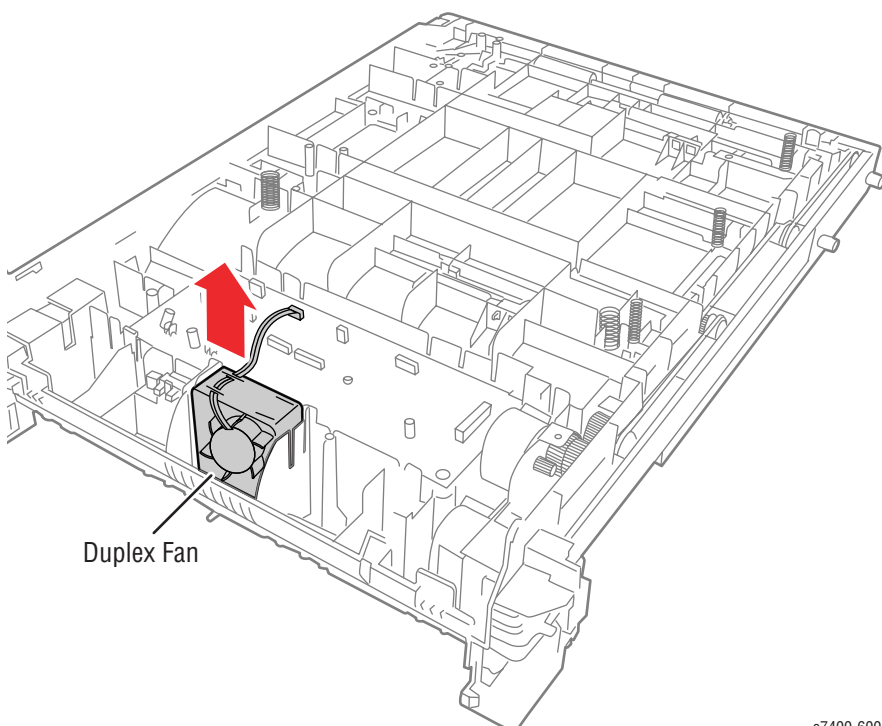
# Duplex Fan

To remove the Duplex Fan:

1. Remove the Front Cover Assembly (page 5-122).
2. Disconnect the fan connector (FAN) from the Duplex Unit Controller Board.
3. Lift the fan free from the plastic molding.

## Caution

Be careful not to lose any of the retainer springs.

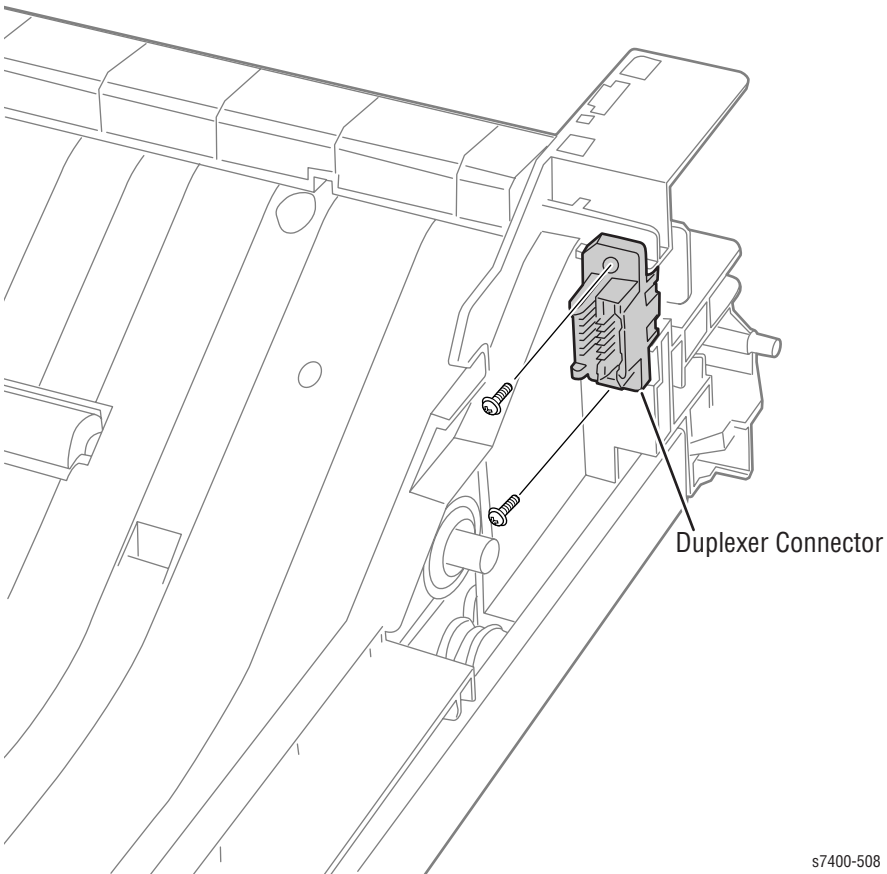


s7400-600

# Interconnect Connector

The Duplex Unit Connector transfers signals between the printer and the Duplex Controller Board. To remove the connector.

1. Remove the Front Door and Front Cover Assembly (page 5-122).
2. Disconnect the Duplex Connector plug from the controller (MAIN1).
3. Free the cable harness from the chassis.
4. Remove two screws (metal, 4 mm) from the connector and lift the connector and cable from the chassis.



s7400-508

# Paper Tray Disassembly

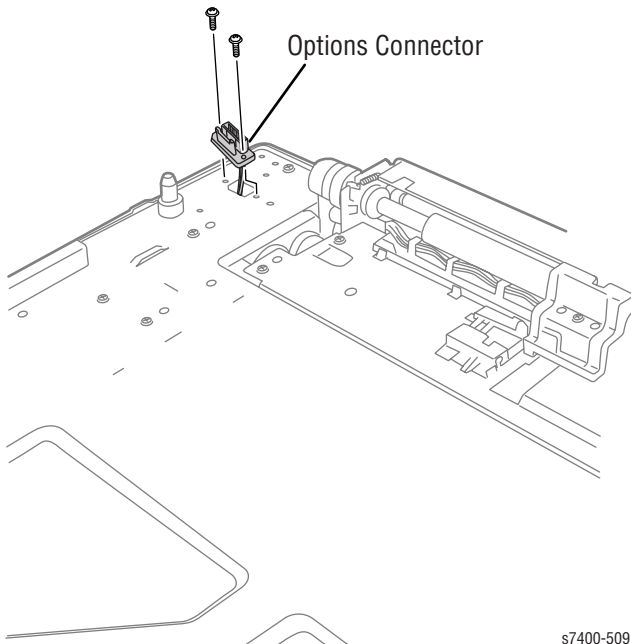
The printer includes one 550-sheet tray. Below the single tray on the printer, the options tray includes one single tray (550-sheets) and 3 additional stacked trays (1650-sheets). Each tray is basically identical, except for some interconnecting hardware.

The following subsections describe how to remove elements of an optional 550-sheet tray.

## Options Connector

On top of each optional tray is an options connector for cascading each of the trays as they rest on top of each other. To replace:

1. Remove the two screws (metal flange, 6 mm) that fasten the connector to the top of the tray.
2. Lift the connector up to reveal the two connector plugs on the underside of the connector.
3. Disconnect the two plugs and replace the connector.



s7400-509

# Tray Covers and Tray Door (Door C)

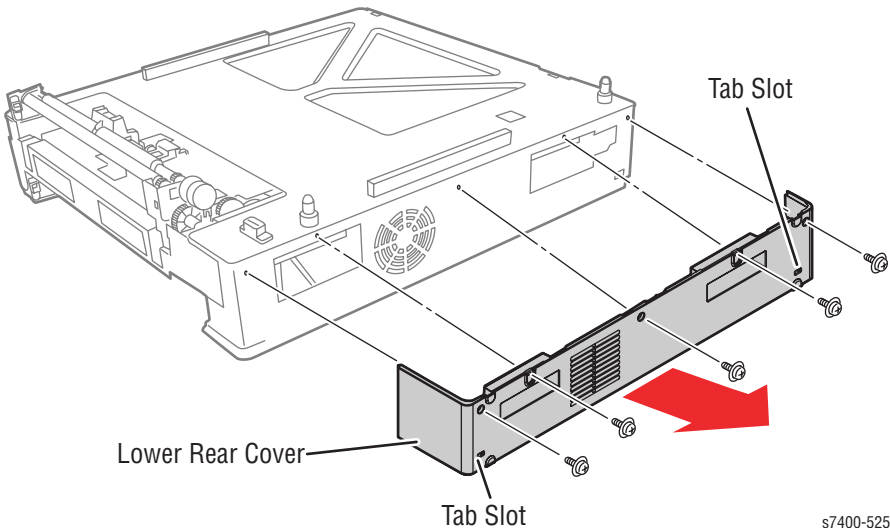
## Note

If optional trays are installed, either remove the printer from the optional tray(s), or lift the right hand side of the printer to provide sufficient clearance to remove 4 screws and pull the Tray Feeder from the frame.

To remove or replace any of the clutches, motors, or sensors, you must first remove either or both the Rear Cover and the Right Side Cover (and in some cases, you will need to remove the tray itself on the front of the unit or open the Tray door, Door C).

To replace the Rear Cover or the Right Side Cover:

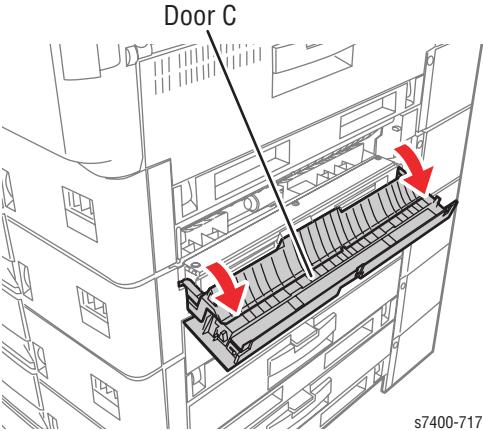
1. Remove five screws (metal flange, 6 mm) fastening each plastic cover to the chassis frame.
2. With a screwdriver, press down inside of the tab slots to pop the plastic cover away from the frame.



s7400-525

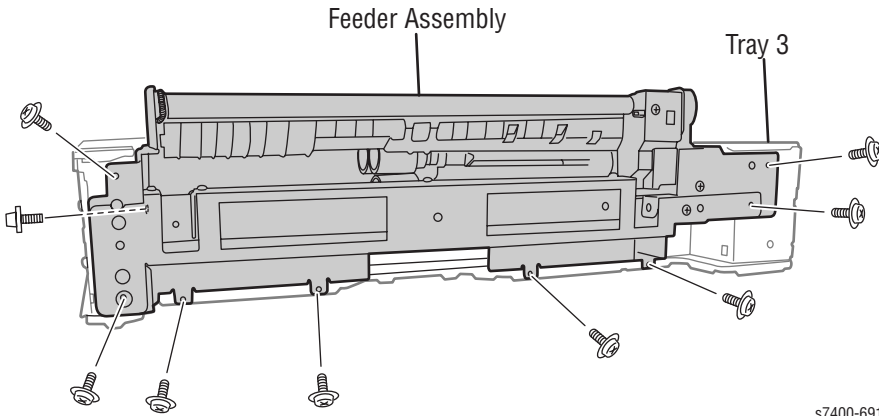
3. On some disassembly of sensors or diagnostic testing, you may need to open the Tray Door (Door C).

4. To locate and open Door C, see the following illustration.



# Tray Feeder

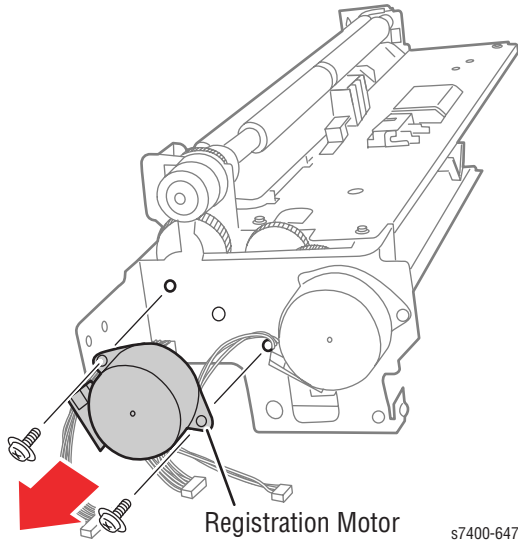
1. Remove Tray 2.
2. Remove the Right Side Cover and Rear Cover (page 5-134).
3. Remove the paper tray.
4. Remove 12 (metal, 10 and 6 mm) screws to remove the Tray 2 Feeder.



s7400-69'

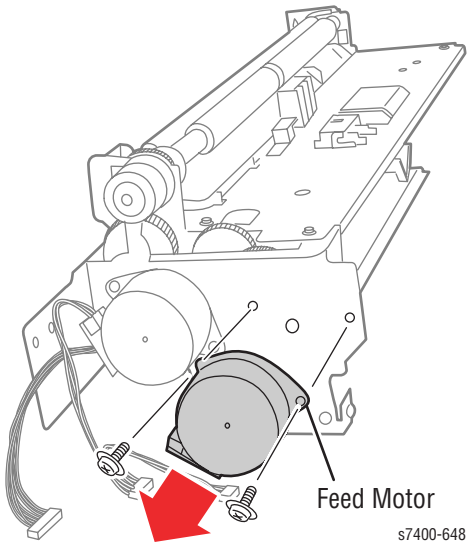
# Registration Motor

1. Remove the Tray Feeder (page 5-136).
2. Release the motor harness from the clamp.
3. Disconnect the Registration Motor connector (P/J40) from the harness.
4. Remove two (metal, 6 mm) screws that secure the Registration Motor to the Feeder.



# Feed Motor

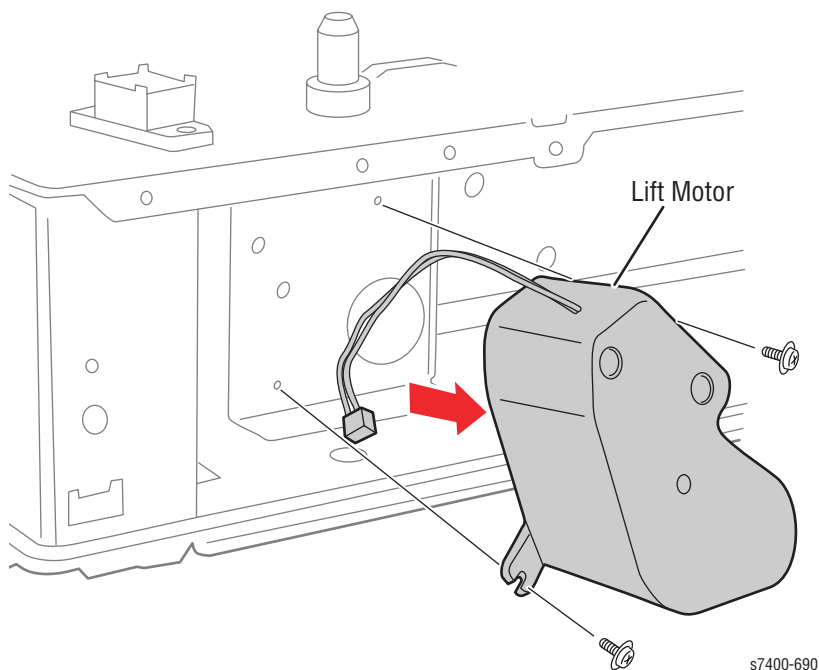
- 1. Remove the Tray 2 Feeder (page 5-136).
- 2. Release the motor harness from the clamp.
- 3. Disconnect the Feed Motor connector (P/J30) from the harness.
- 4. Remove two (metal, 6 mm) screws that secure the Feed Motor to the Feeder.





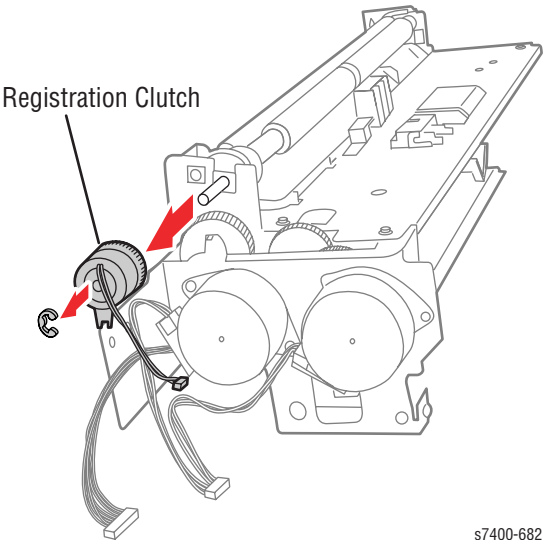
## Lift Motor

1. Remove the tray.
2. Remove the Right Rear Cover (page 5-134).
3. Disconnect the Lift Motor connector GDDC from the Motor Driver Board.
4. Remove the two (metal, 6 mm) screws that secure the Lift Motor to the frame.



# Registration Clutch

- 1. Remove the Tray Feeder (page 5-136).
- 2. Remove the E-clip that secures the clutch to the Registration Roller.



- 3. While holding the anti-rattle spring, remove the clutch from the roller shaft.

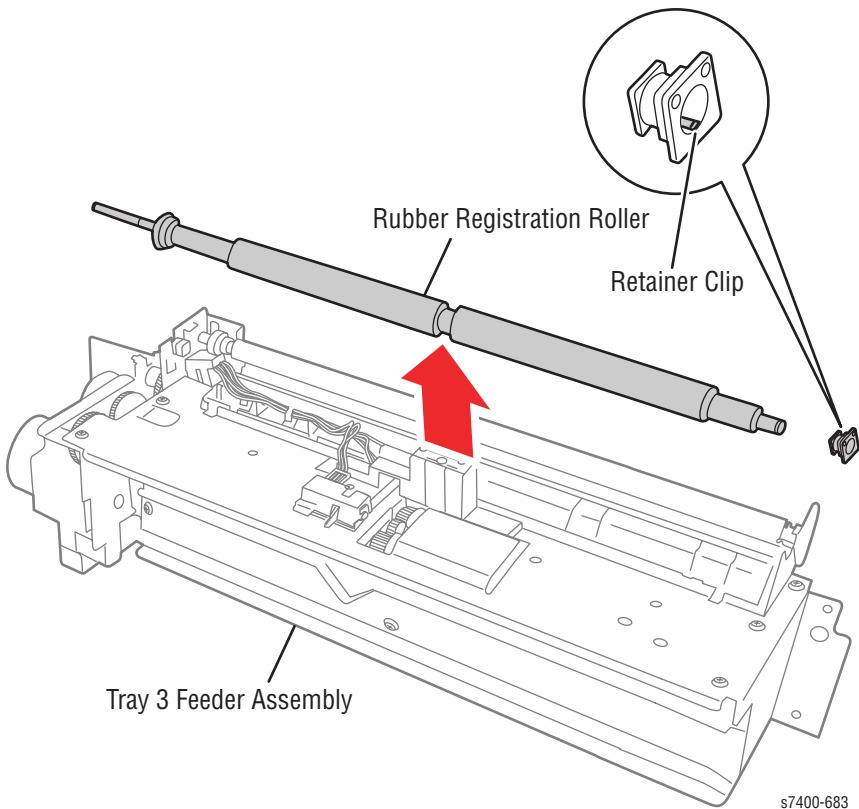
## Door C Detect Sensor

The Door C Detect Sensor is mounted on a carrier located beneath the Registration Rollers near the clutch.

### Caution

Use care when removing the roller shaft bearings. The bearings use a small clip to lock into a notch near the end of each roller shaft. Use a small, flat-bladed screwdriver to release the clip from the shaft before attempting to remove the bearing.

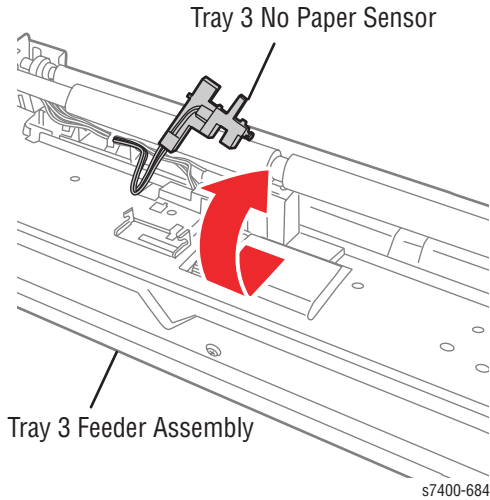
1. Remove the Tray 2 Feeder (page 5-136).
2. Remove the Registration Clutch #2 (page 5-140).
3. Remove the 2 springs that tension the Registration Rollers.
4. Remove the bearings at each end of the rubber roller, and then remove the roller.



5. Release the hook that secures the sensor carrier to the feeder.
6. Turn the sensor carrier over, and then release the hooks that secure the sensor to the carrier.
7. Disconnect the sensor connector (P/J41).

# No Paper Sensor

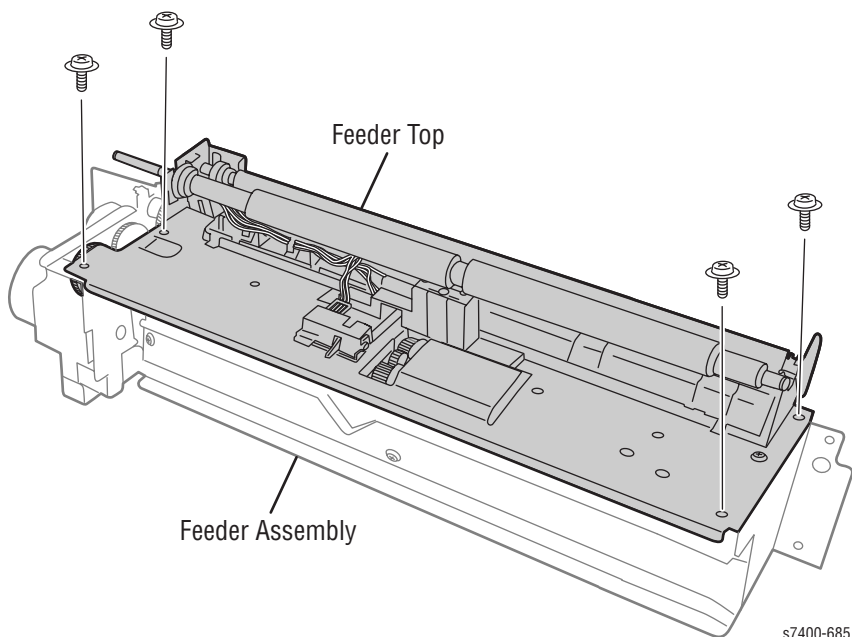
- 1. Remove the Tray Feeder (page 5-136).
- 2. Remove 4 (metal, 23 mm) screws that secure the brace. Release the hook that secures the No Paper Sensor housing to the feeder.
- 3. Turn the housing over, and then release the hooks that secure the sensor to the housing.



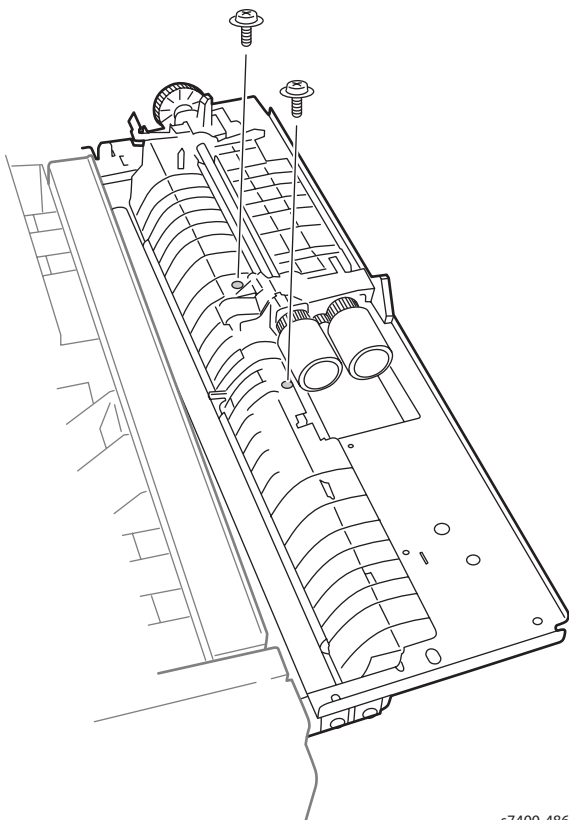
- 4. Disconnect the sensor connector (P/J43).

## Registration Sensor #2

1. Remove the Tray Feeder (page 5-136).
2. Remove the Registration Clutch #2 (page 5-140)
3. Remove the Feeder Board Cover.
4. Remove 4 (metal, 6 mm) screws that secure the feeder top.

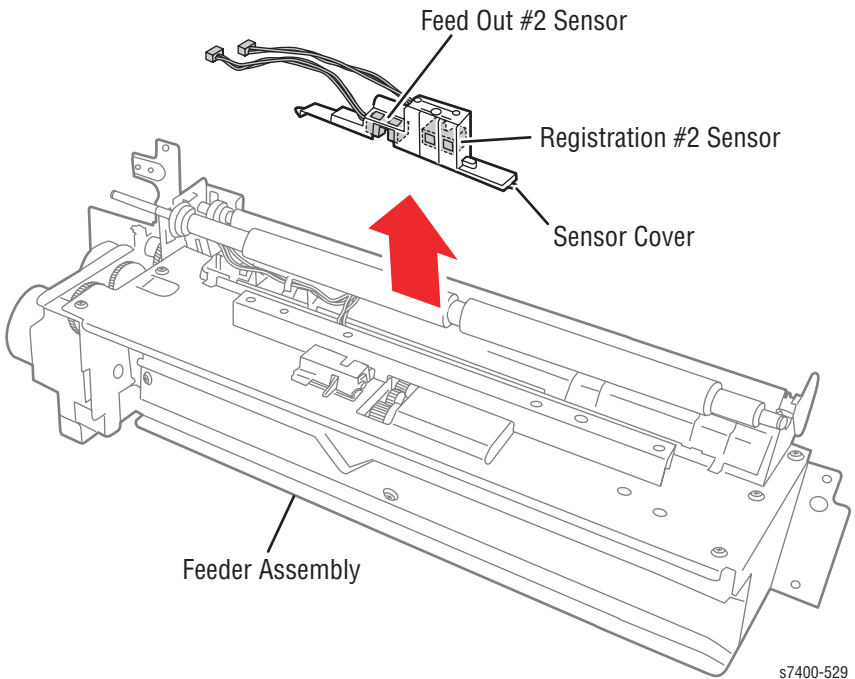


5. Separate the feeder top, and then turn the top over to remove 2 (black, plastic 10 mm) screws that secure the sensor housing to the feeder.



s7400-486

6. Turn the feeder top upright, and release the 2 hooks that secure the sensor housing to the top of the feeder.



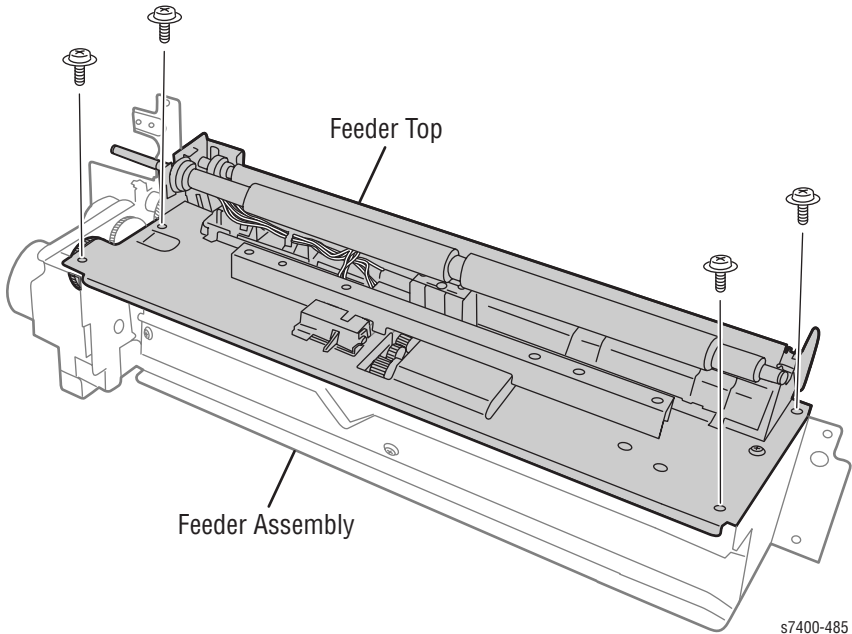
7. Release the hooks that secure the sensor in the housing.
8. Disconnect the sensor connector (P/J42), and then remove the sensor.

### Replacement Note

Use care when replacing the feeder top. Make sure the Level, and Low Paper Sensor flags operate properly before tightening the screws.

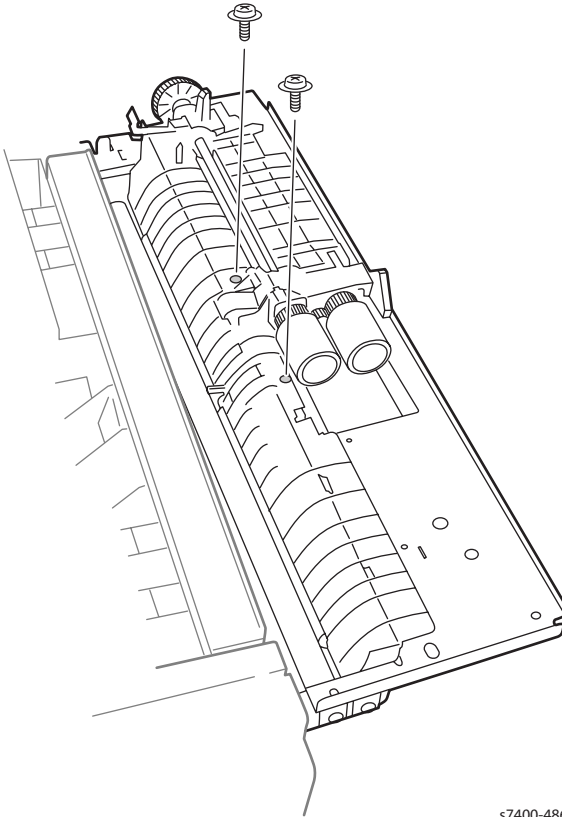
## Feed-Out Sensor #2

1. Remove the Tray Feeder (page 5-136).
2. Remove the Registration Clutch #2 (page 5-140).
3. Remove the Feeder Board Cover.
4. Remove 4 (metal, 6 mm) screws that secure the feeder top.





5. Separate the feeder top, and then turn the top over to remove 2 (black, plastic 10 mm) screws that secure the sensor housing to the feeder.



s7400-486

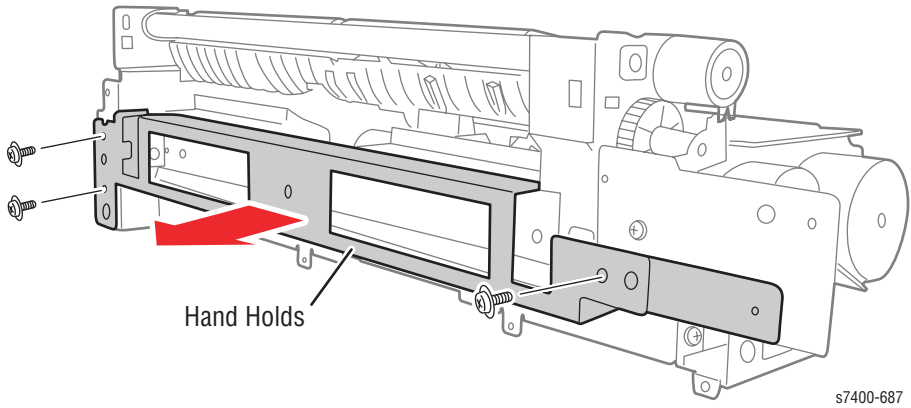
6. Turn the feeder top upright, and release the 2 hooks that secure the sensor housing to the top of the feeder.
7. Release the hooks that secure the sensor in the housing.
8. Disconnect the sensor connector (P/J43), and then remove the sensor.

### **Replacement Note**

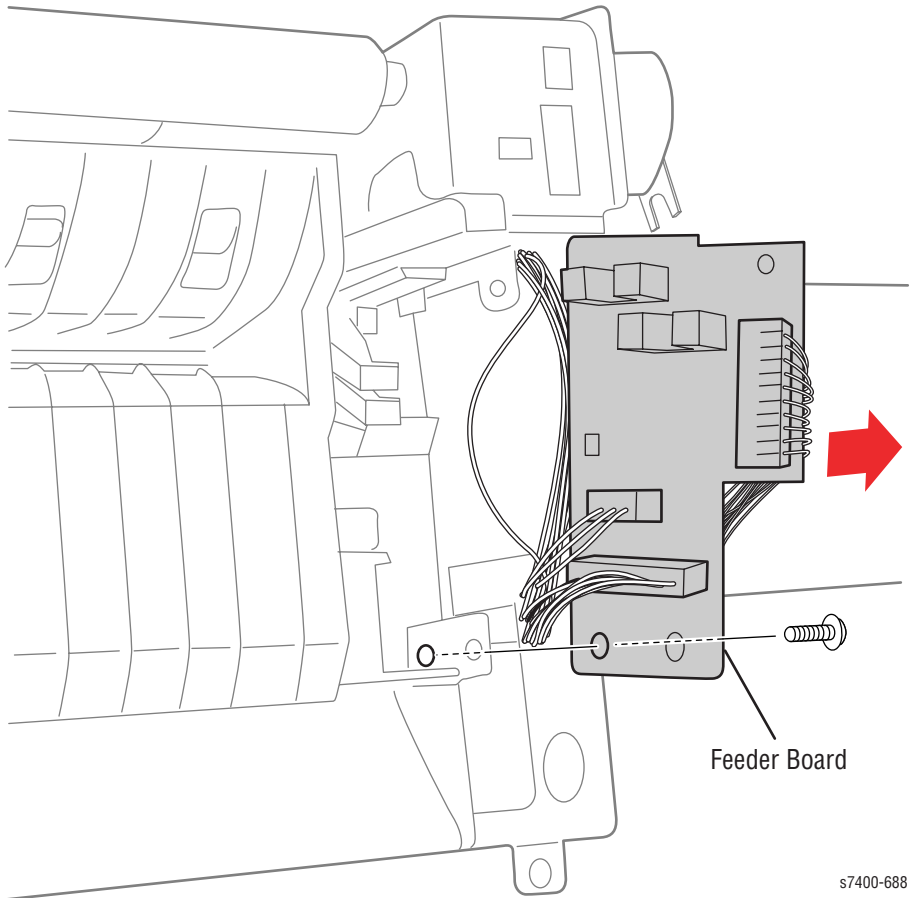
Use care when replacing the feeder top. Make sure the Level, and Low Paper Sensor flags operate properly before tightening the screws.

## Feeder Board

1. Remove the Tray Feeder (page 5-136).
2. Remove 3 (metal, 10 mm) screws that secure the hand holds to the feeder.



3. Remove 1 (metal, 6 mm) screw that secures the Feeder Board Cover.



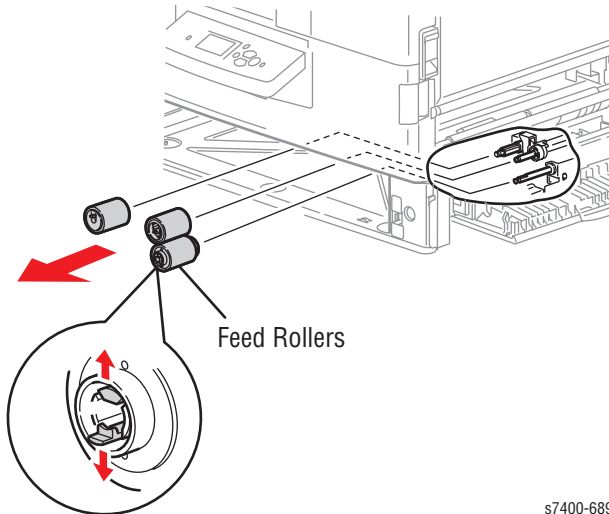
4. Remove 1 (metal, 6 mm) screw that secures the Feeder Board to the Feeder. Disconnect the connectors (TRYSNS1, TRYNS2, and PAPEND) to remove the board.

# Tray Feed Rollers

## Note

Feed Roller (Pick, Feed, Retard) removal is identical for all Universal Trays. Since each roller is unique, match each replacement roller to the roller being removed.

1. Remove Tray 2.
2. Open Door B.
3. Release the hook that secures each roller to the shaft.



s7400-689

# Parts List

## In this chapter...

- Using the Parts List
- Finisher Parts
- Duplex Unit Parts
- Tray Parts

## Section 6



# Using the Parts List

Only those parts listed with part numbers are available for order. Parts listed without part numbers are only available as part of a parent assembly or Service Kit.

1. **No.:** The callout number from the exploded part diagram.
2. **Part Number:** The material part number used to order specific parts.
3. **Name/Description:** Name of the part and number supplied per order.

## Note

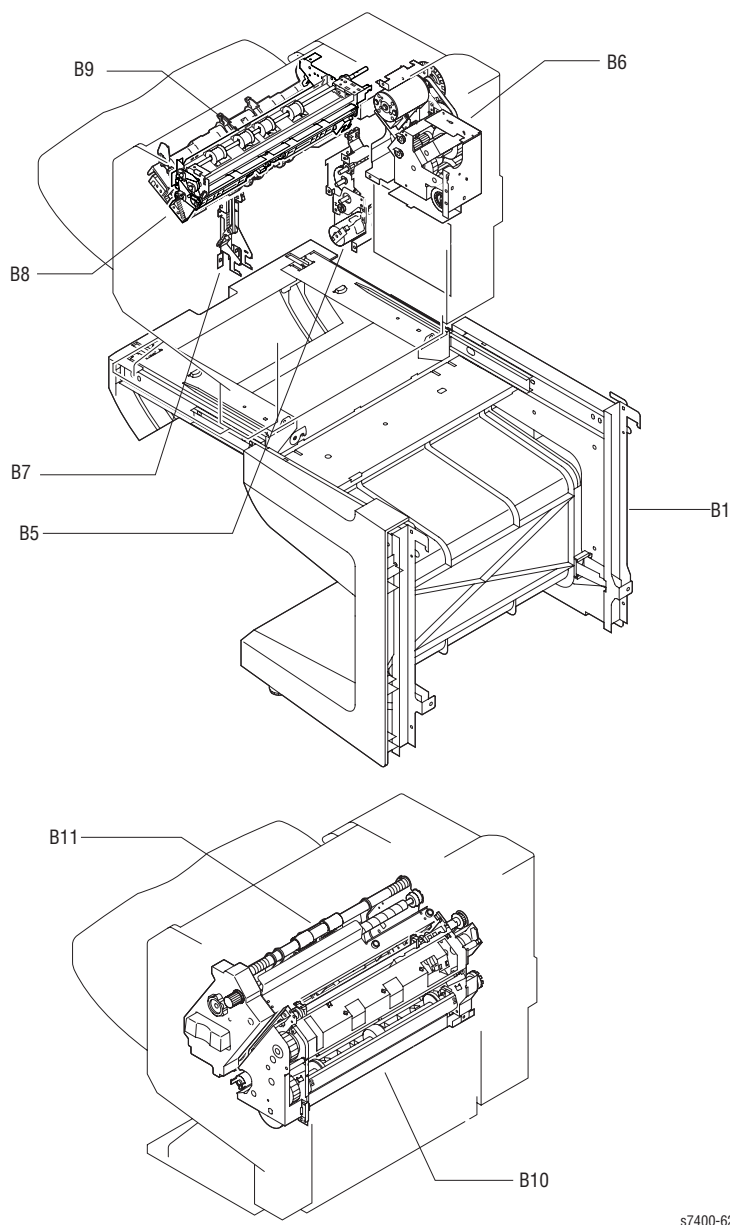
In some cases, the Name/Description will be followed with a different name in parentheses. This indicates the same part but with a different name in the disassembly section.

4. Parts throughout this manual are referenced **PL#.#.#**; For example, PL3.1.10 means the part is item 10 of Parts List 3.1.
5. A black triangle preceding a number followed by a parenthetical statement indicates the item is a parent assembly, made up of the parts listed in parentheses and enclosed by a dashed line.
6. The notation “**(with X~Y)**” following a part name indicates an assembly includes components X through Y. For example, “1 (with 2~4)” means part 1 consists of parts 2, 3, and 4.
7. The notation “**J1<>J2 and P2**” is attached to a wire harness. It indicates that connector Jack 1 is attached to one end of the wire harness and connector J2 is attached to the other end that is plugged into P2.

# Finisher Parts

The following pages show a parts locator diagram and parts list table for each unit of the Finisher.

# Finisher Unit Assembly Diagram



s7400-628

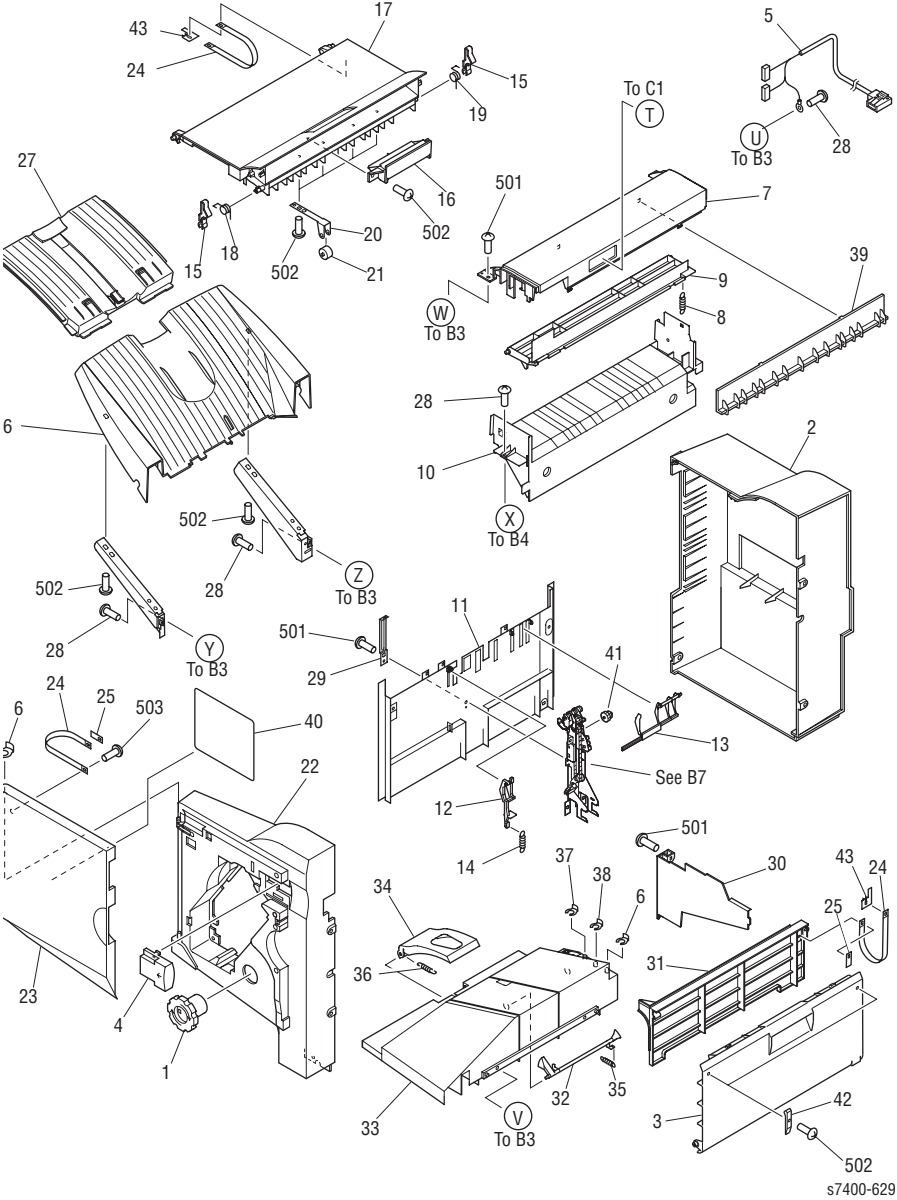


# Parts List 1.1 Finisher Unit Assembly Parts List

## Finisher Unit Parts List

ID #	Part Number	Name/Description
0	097S03363 097S03364	Finisher, 3 hole Finisher 2/4 hole
B-1	050E23450	Base Unit
B-5	005K12430	Stack Motor Drive Assembly (Lift Motor and sensors)
B-6	005K12440	Drive Assembly (Delivery Motor Assembly)
B-7	848K00040	Bundle Support Cover (Paper Detector)
B-8	054K37780	Dispose assembly (ProcessingTray)
B-9	059K52480	Paper Feeder Assembly (Paddle Assembly)
B-10	054K37790	Fold Assembly
B-11	029K04400	Staple Assembly (Staple Unit)

# Finisher External Parts Diagram



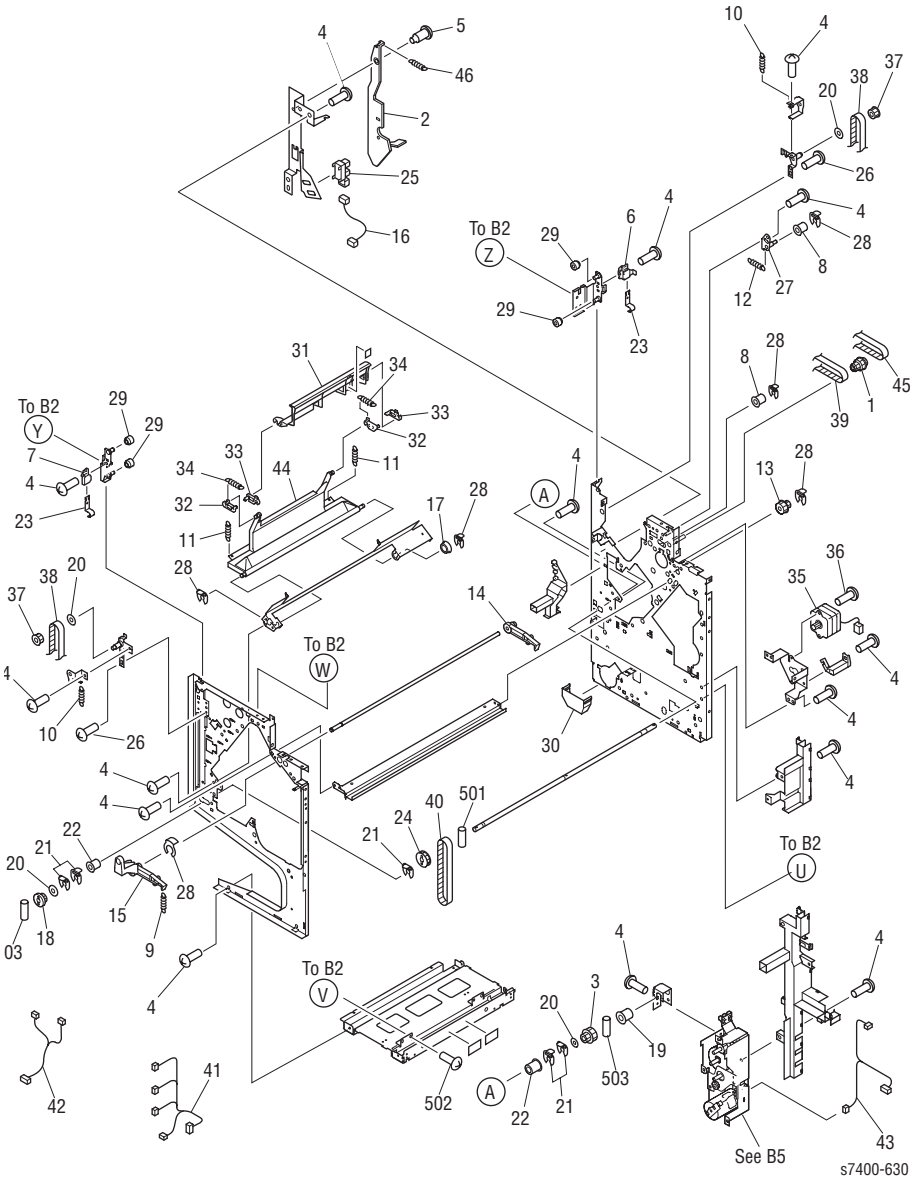
# Parts List 1.2 Finisher External Parts List

## Finisher External Parts List

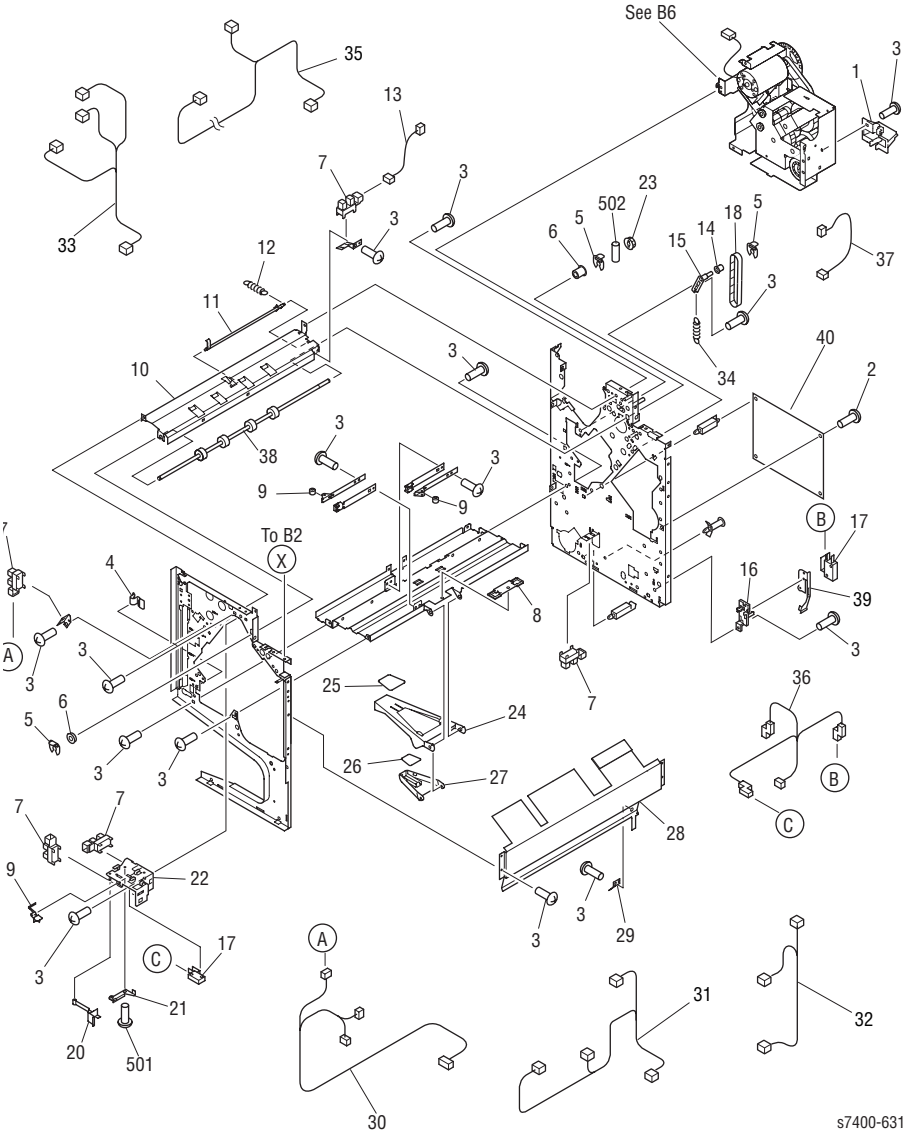
ID #	Part Number	Name/Description
0	848K00040	Bundle Support Cover Assembly (Paper Detector)



# Finisher Internal Parts Diagram (1 of 2)



# Finisher Internal Parts Diagram (2 of 2)



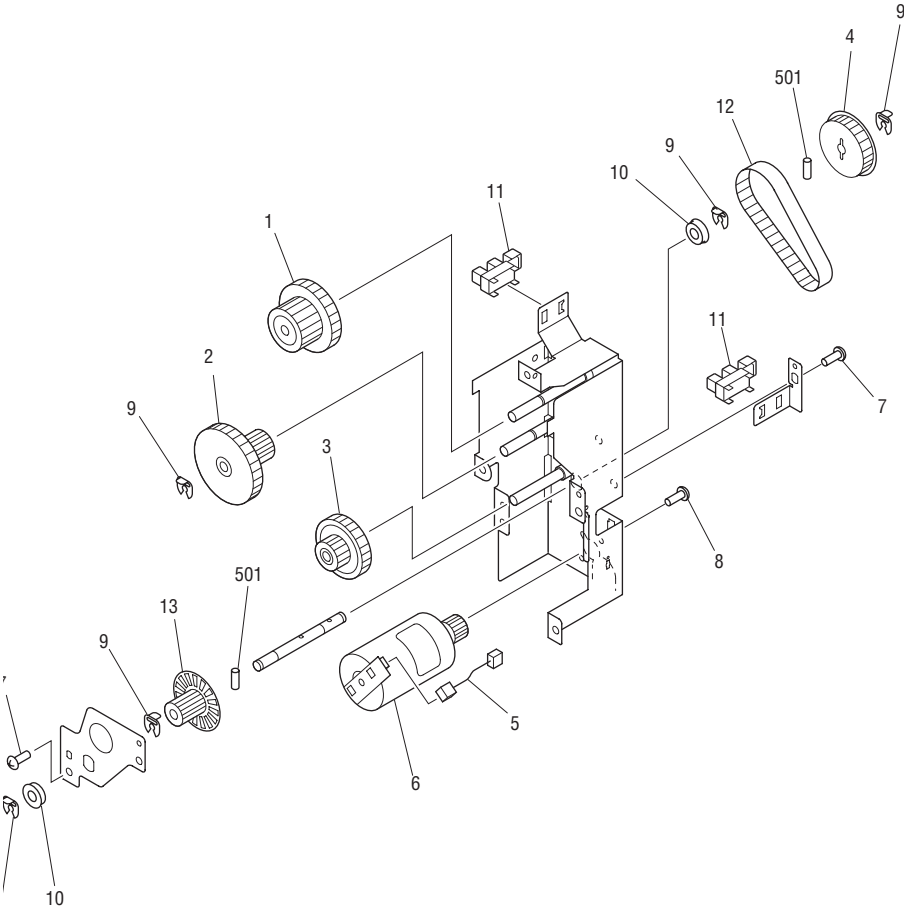
s7400-631

# Parts List 1.3 Finisher Internal Parts List

## Finisher Internal Parts List

ID #	Part Number	Name/Description
7	137E16140	IC TLP1241 Photo Interrupter

# Stack (Lift) Motor Drive Assembly Parts Diagram



s7400-632

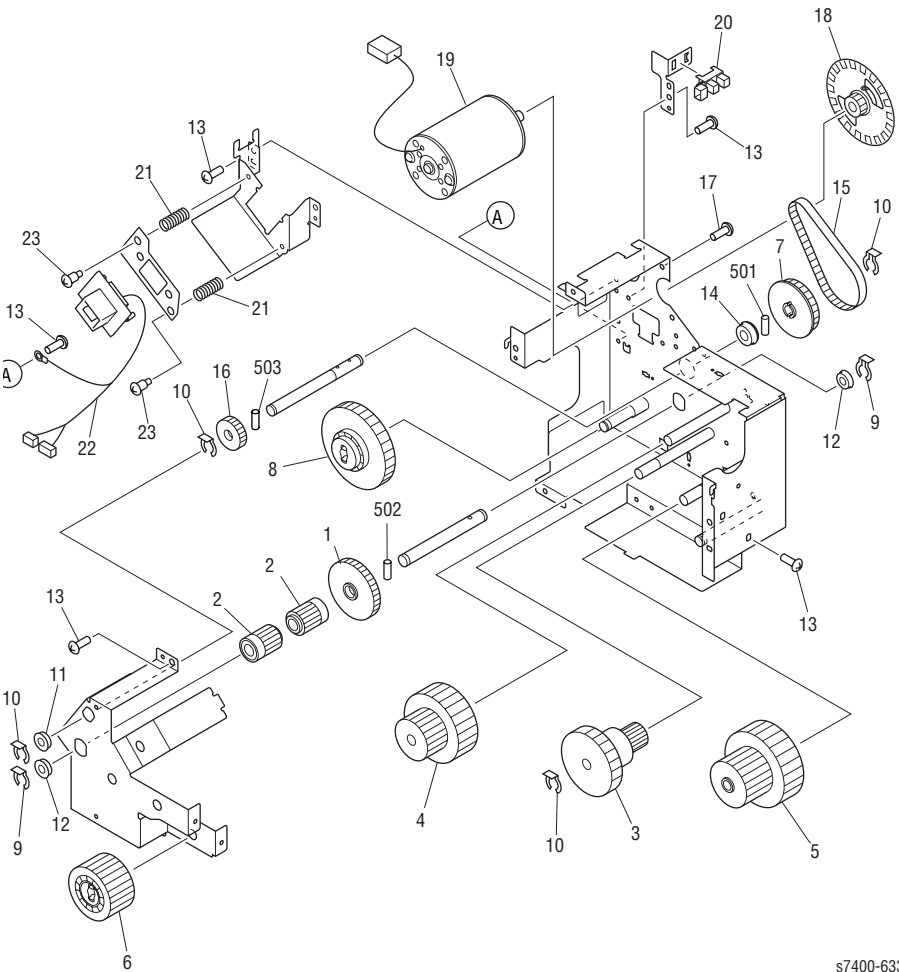


# Parts List 1.4 Stack (Lift) Motor Drive Assembly Parts List

## Stack (Lift) Motor Drive Assembly Parts List

ID #	Part Number	Name/Description
0	005K12430	Stack Motor Drive Assembly (Lift Motor)

# (Staple/Fold) Drive Assembly Parts Diagram



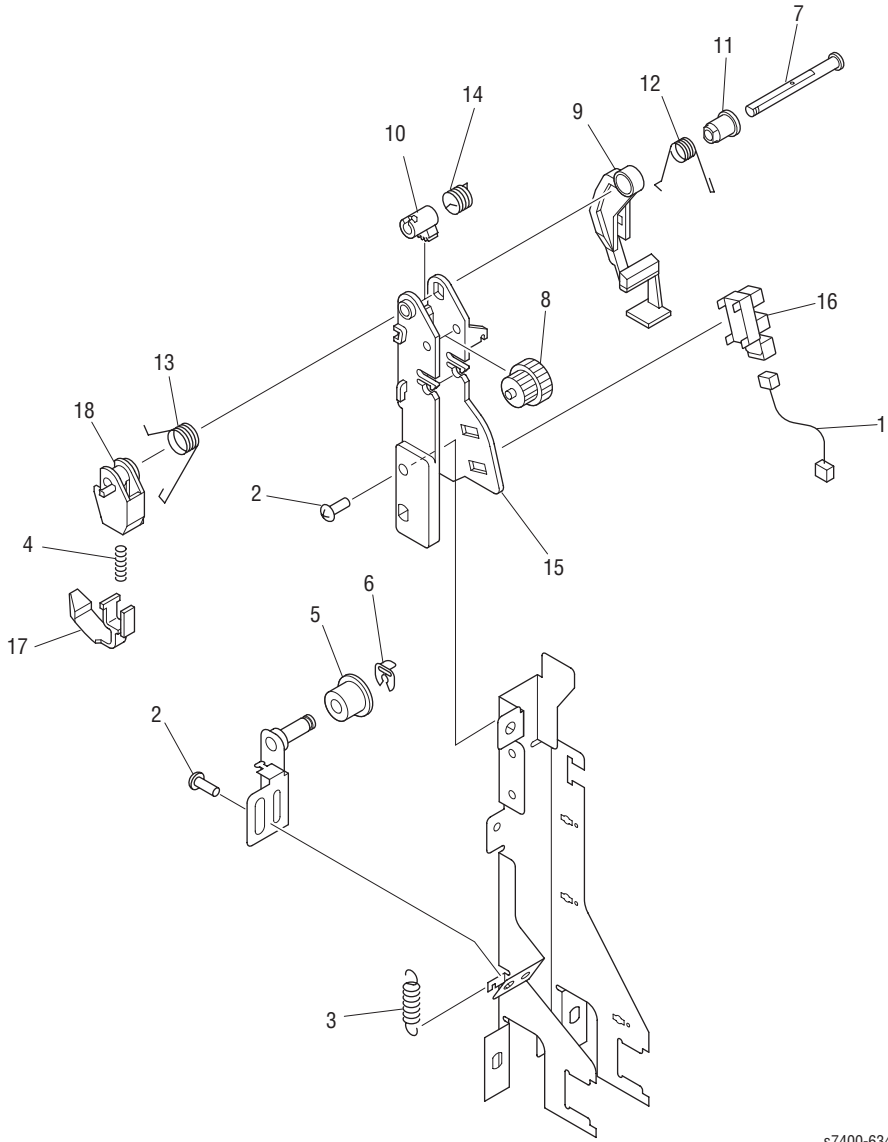
s7400-633

# Parts List 1.5 (Staple/Fold) Drive Assembly Parts List

## Staple/Fold Drive Assembly Parts List

ID #	Part Number	Name/Description
0	005K12440	Drive Assembly (Staple/Fold)

# Bundle Support Cover Assembly Parts Diagram



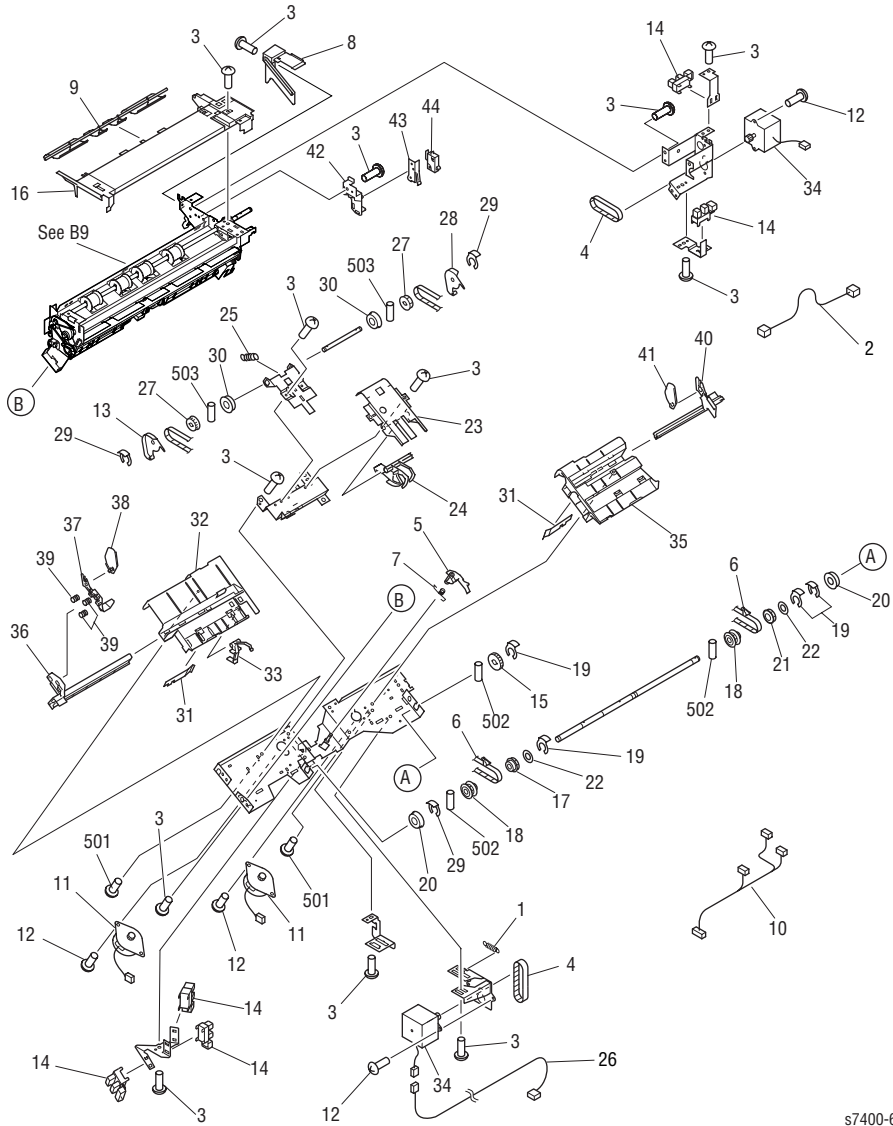
s7400-634

# Parts List 1.6 Bundle Support Cover Parts List

## Bundle Support Cover Assembly (Paper Detection) Parts List

ID #	Part Number	Name/Description
0	848K00040	Bundle Support Cover (Paper Detection)

# Dispose Assembly (Processing Tray) Parts Diagram



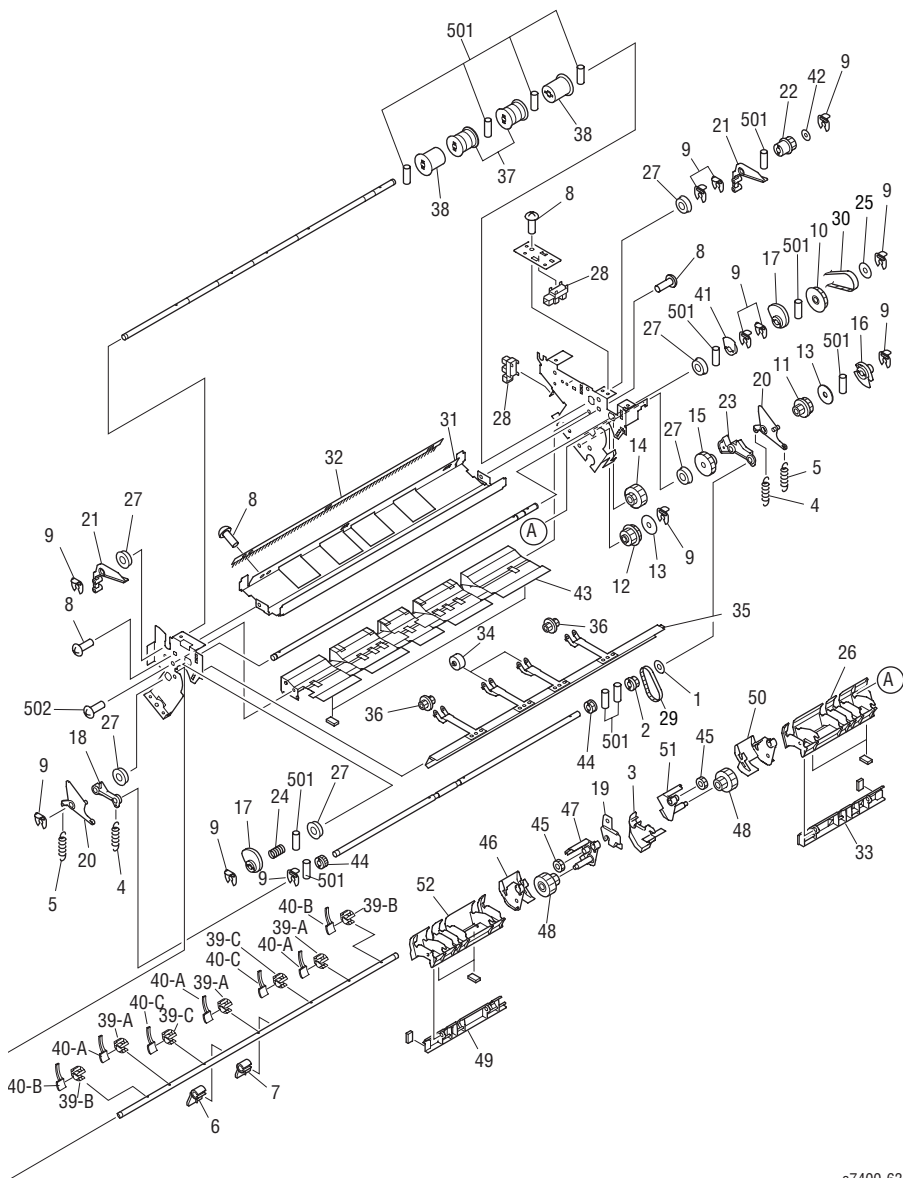
s7400-6c

# Parts List 1.7 Dispose Assembly (Processing Tray) Parts List

## Dispose Assembly (Processing Tray) Parts List

ID #	Part Number	Name/Description
0	054K37780	Dispose Assembly (Processing Tray)

## Paper Feeder (Paddle) Assembly Parts Diagram



s7400-636

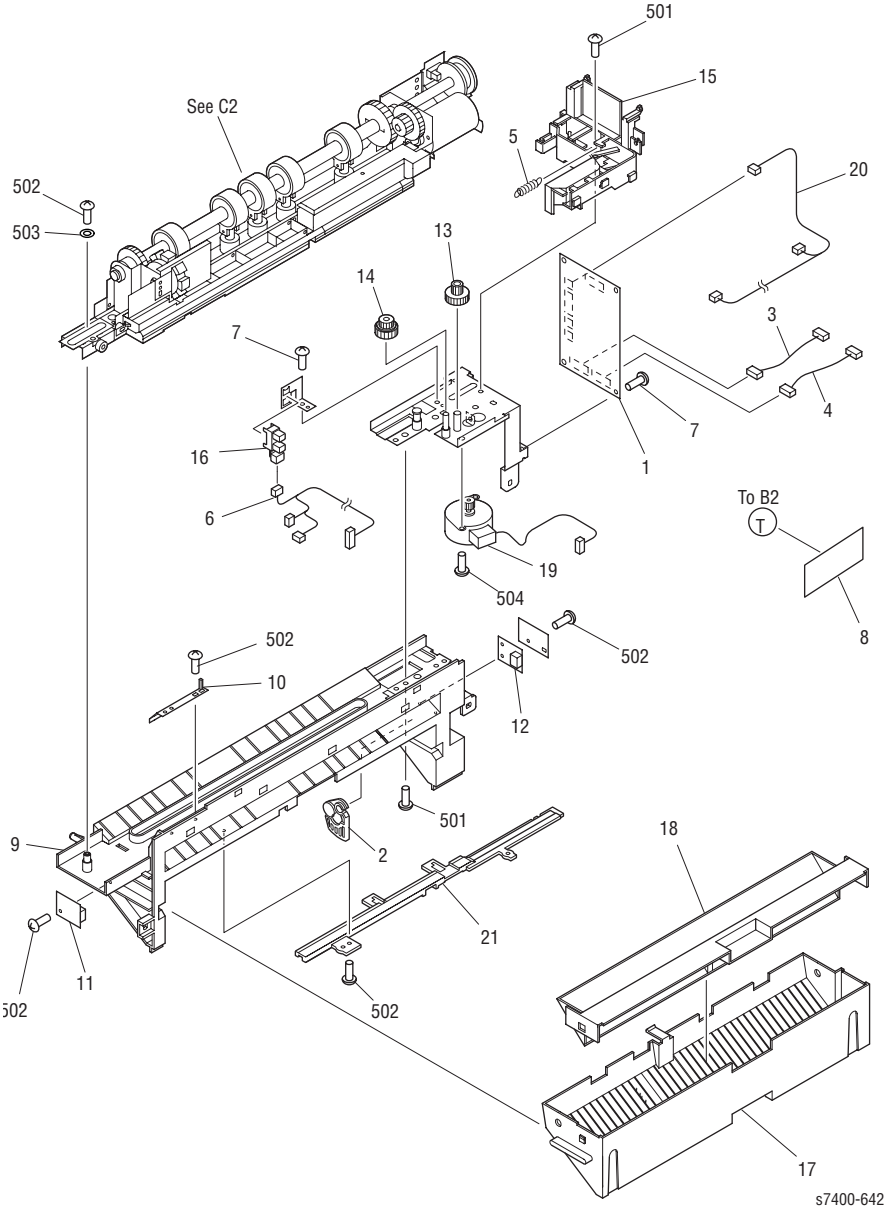


# Parts List 1.8 Paper Feeder (Paddle) Assembly Parts List

## Paper Feeder (Paddle) Assembly Parts List

ID #	Part Number	Name/Description
0	059K52480	Paper Feeder (Paddle) Assembly

# Puncher Assembly Parts Diagram

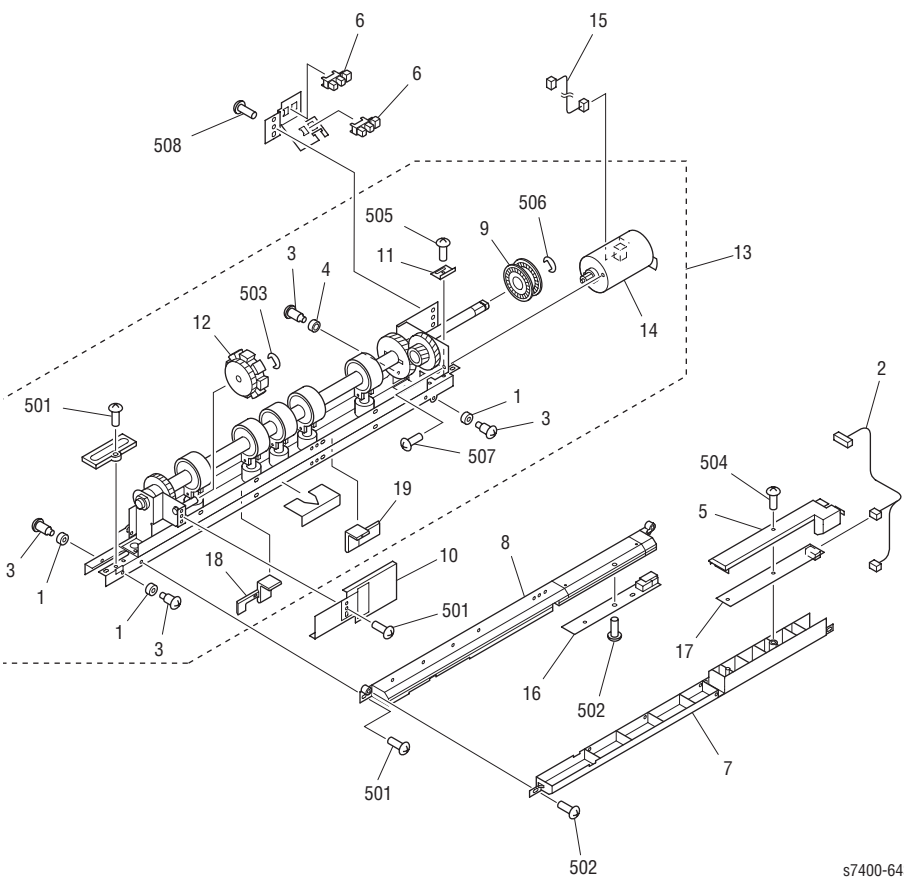


# Parts List 1.9 Puncher Assembly Parts List

## Puncher Assembly Parts List

ID	Part Number	Name/Description
1	109K02020	Puncher Controller Board Assy
11	848E05300	Dust-LED Board Unit
12	848E05310	Dust-PTR Board Unit
16	137E16140	IC TLP1241 Photo-Interrupter
17	848E05320	Panel - Dust Box
18	848E05330	Cover - Dust Box
19	127E15510	Motor - Stepping

# Punch Total Assembly Diagram



s7400-643

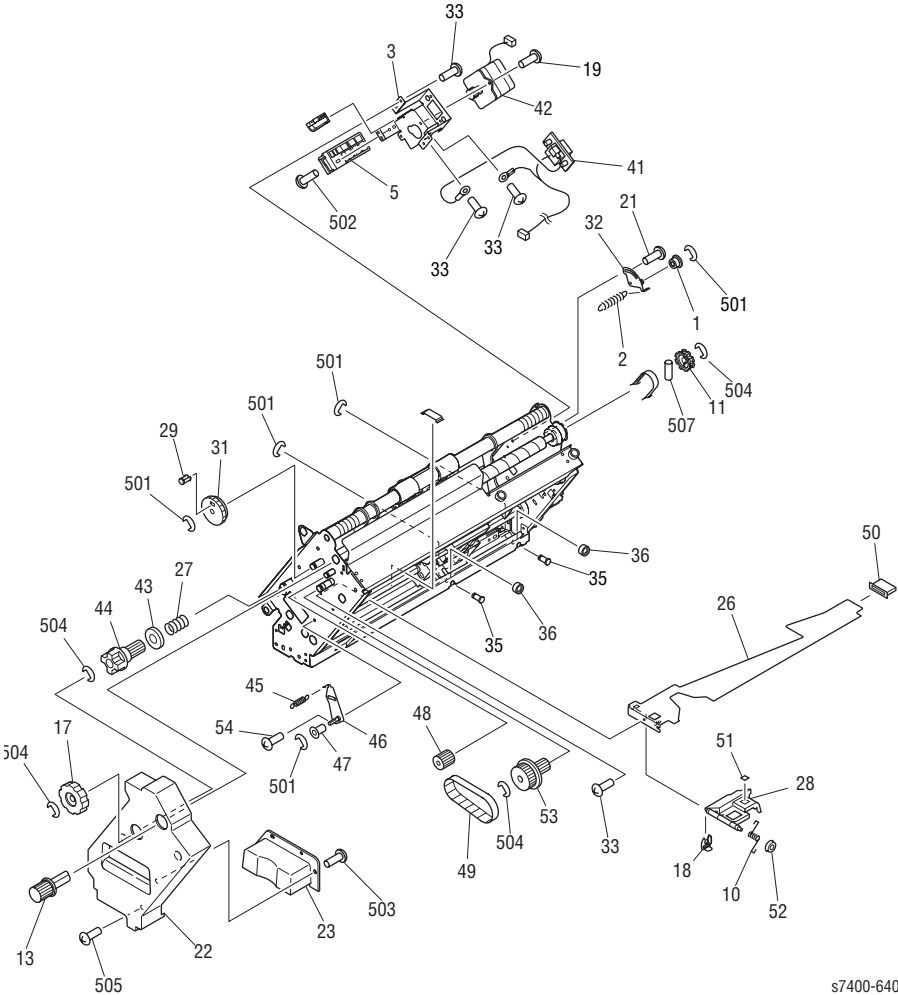
# Parts List 1.10 Punch Total Assembly Parts List

## Punch Total Assembly Parts List

ID	Part Number	Name/Description
0	084K35580 084K35590	Puncher 2/3 holes XC Punch Unit 4 hole-F XC
6	137E16140	IC TLP1241 Photo Interrupter
13	180K00230 108K00240	Punch Unit 2/3H XC Punch Unit 4H-F XC
14	127K55160	Motor - DC
16	960K32910	PCB- Unit1
17	960K32920	PCB- Unit2

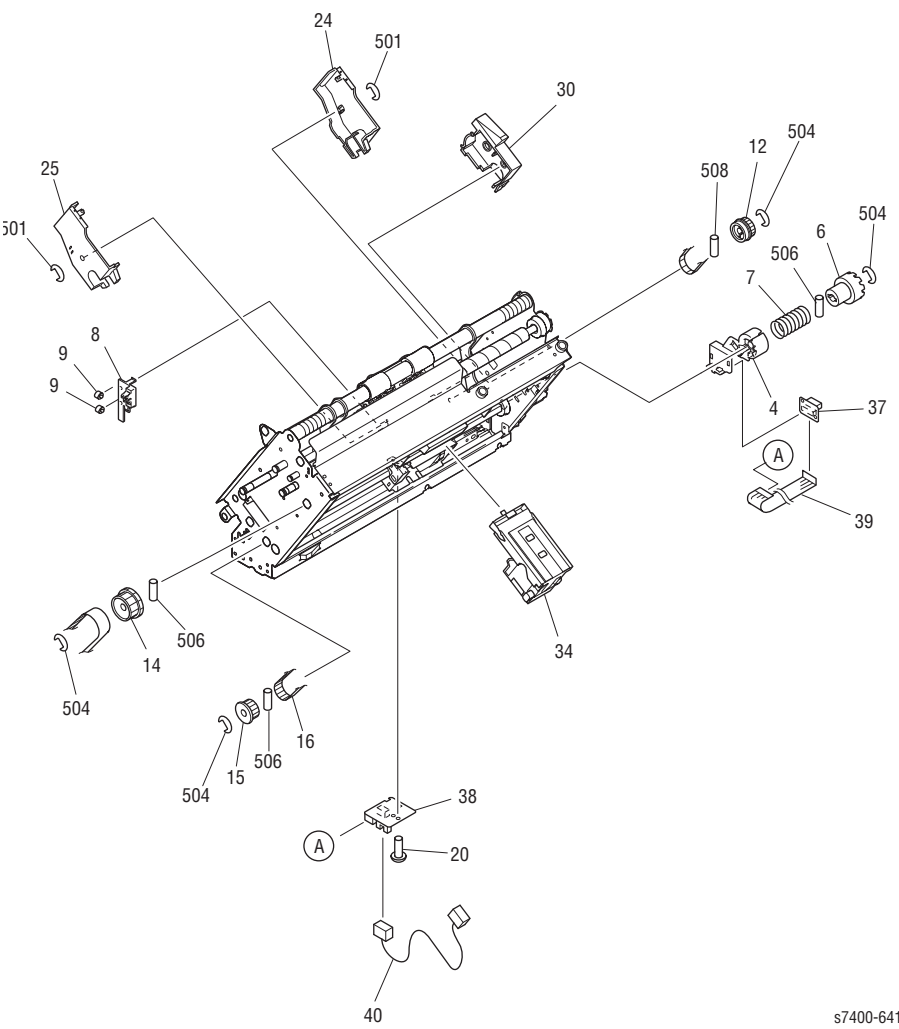


# Staple Unit Diagram (1 of 2)



s7400-640

# Staple Unit Diagram (2 of 2)



s7400-641

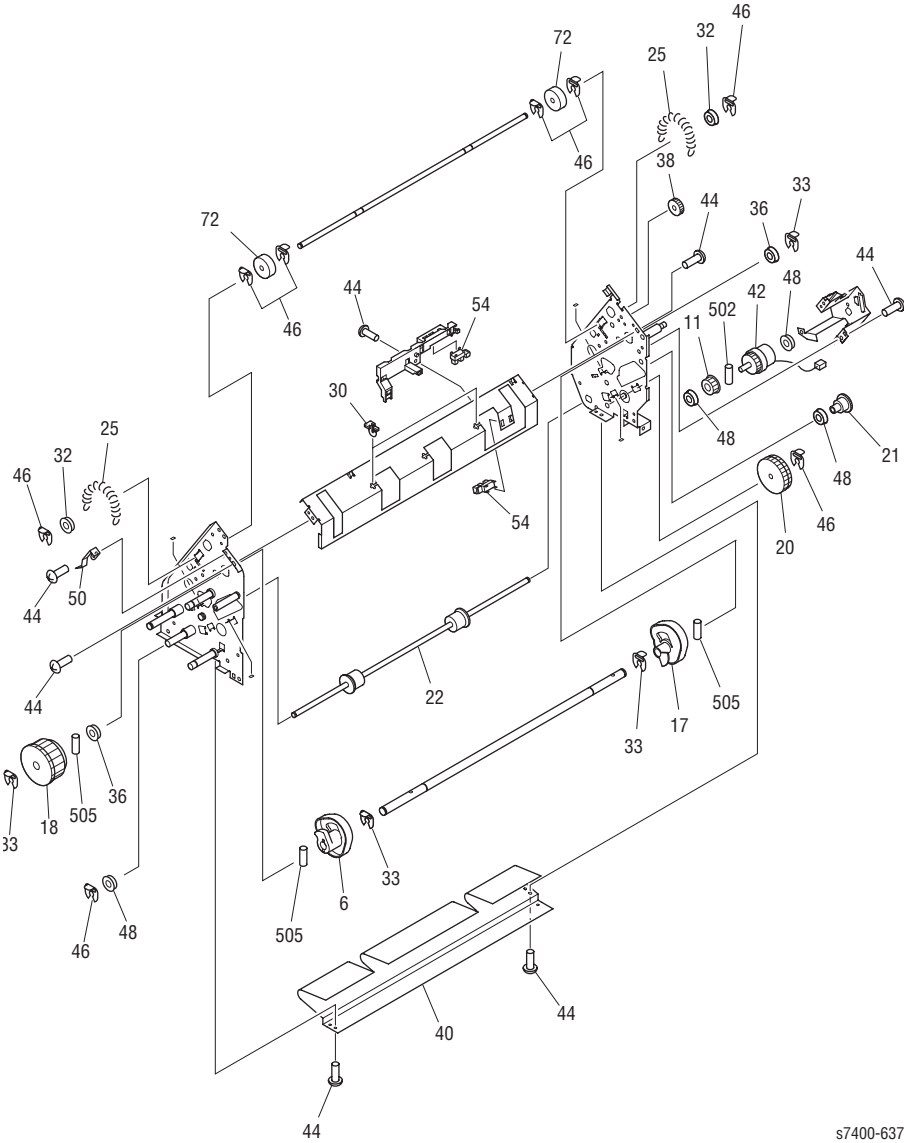


# Parts List 1.11 Staple Unit Parts List

## Staple Unit Parts List

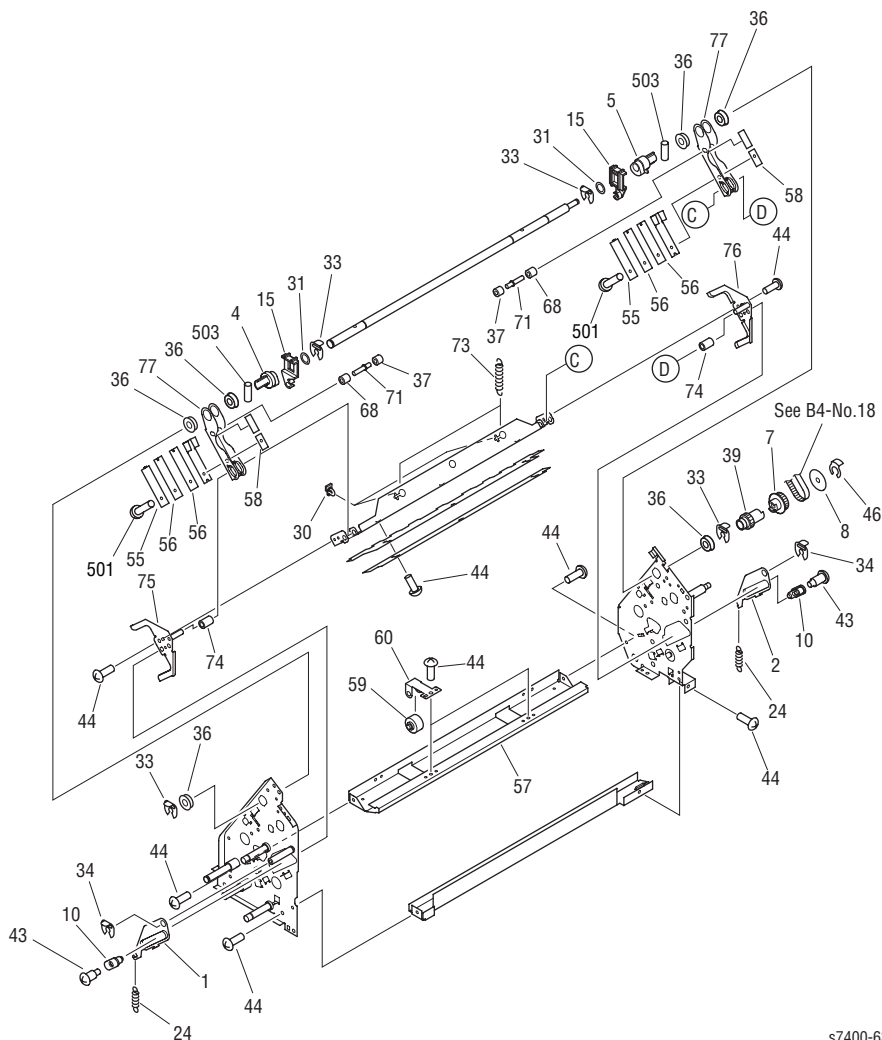
ID #	Part Number	Name/Description
0	029K04400	Staple Assembly

# Fold Unit Diagram (1 of 3)



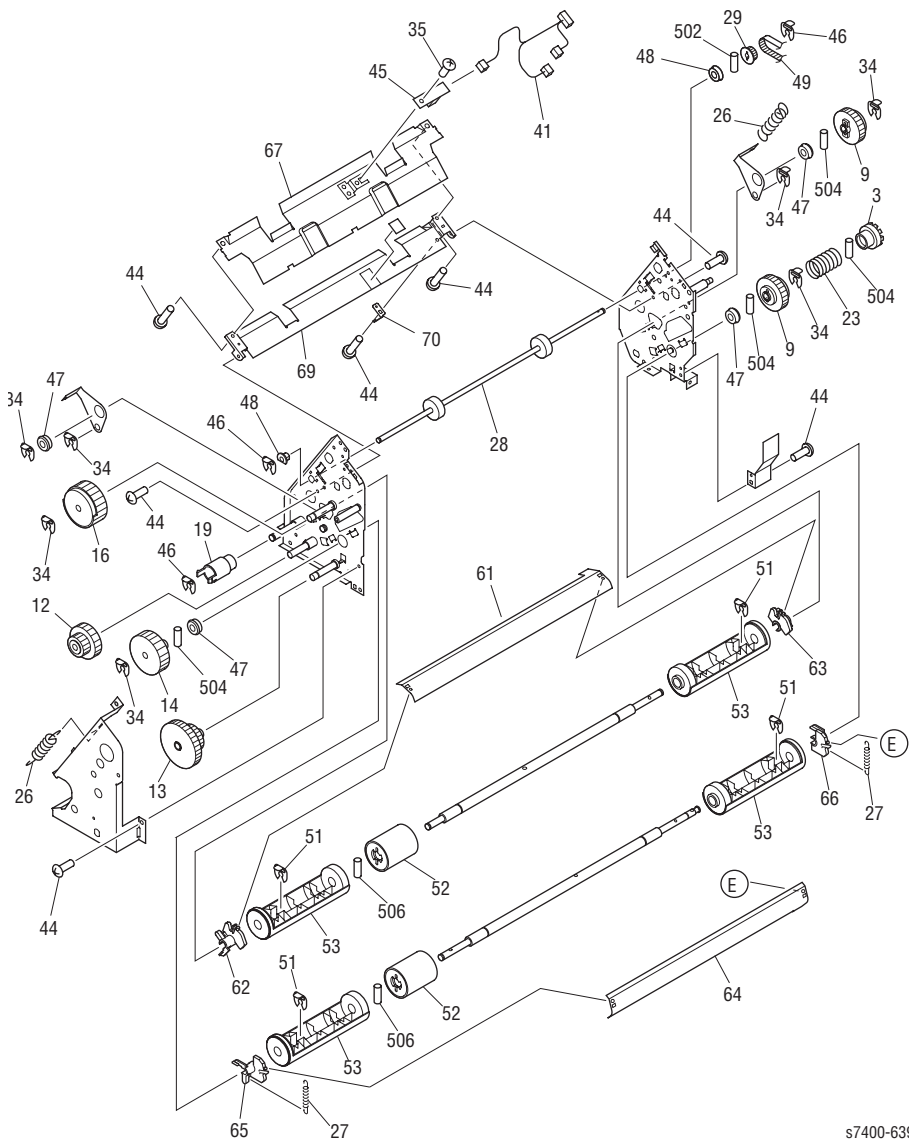
s7400-637

## Fold Unit Diagram (2 of 3)



s7400-638

### Fold Unit Diagram (3 of 3)

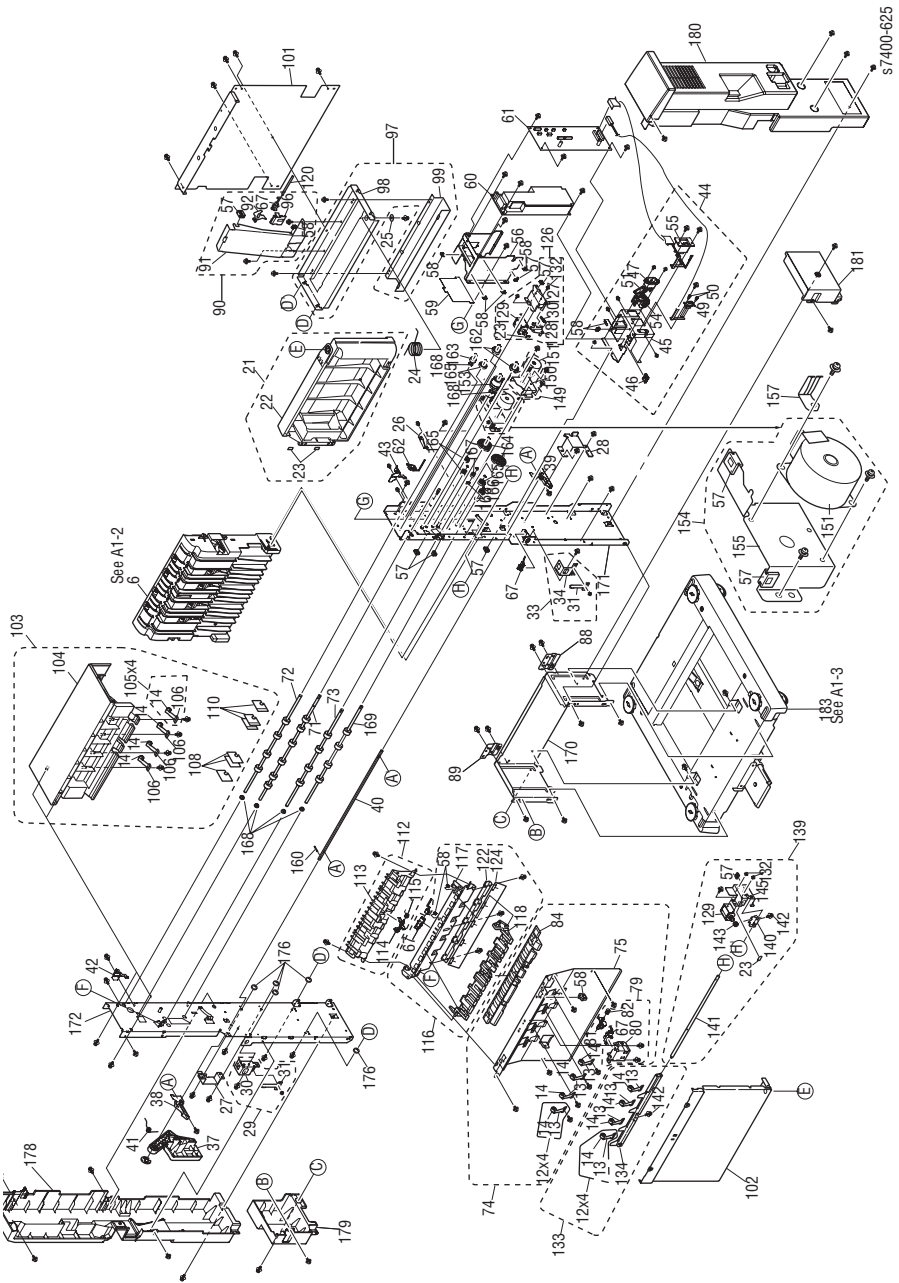


# Parts List 1.12 Fold Unit Parts List

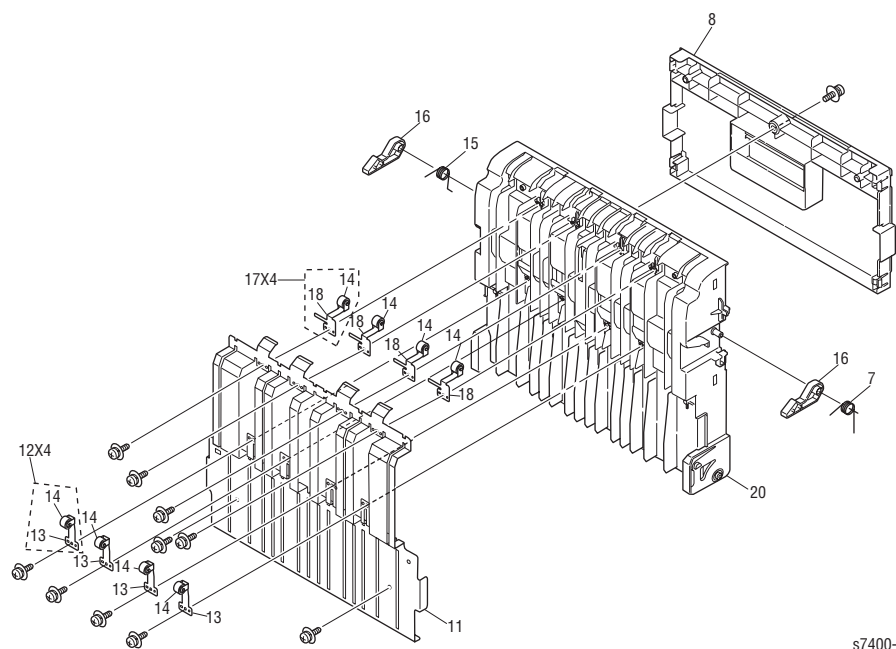
## Fold Unit Parts List

ID #	Part Number	Name/Description
0	054K37790	Fold Assembly

Inverter Parts Diagram (1 of 3)

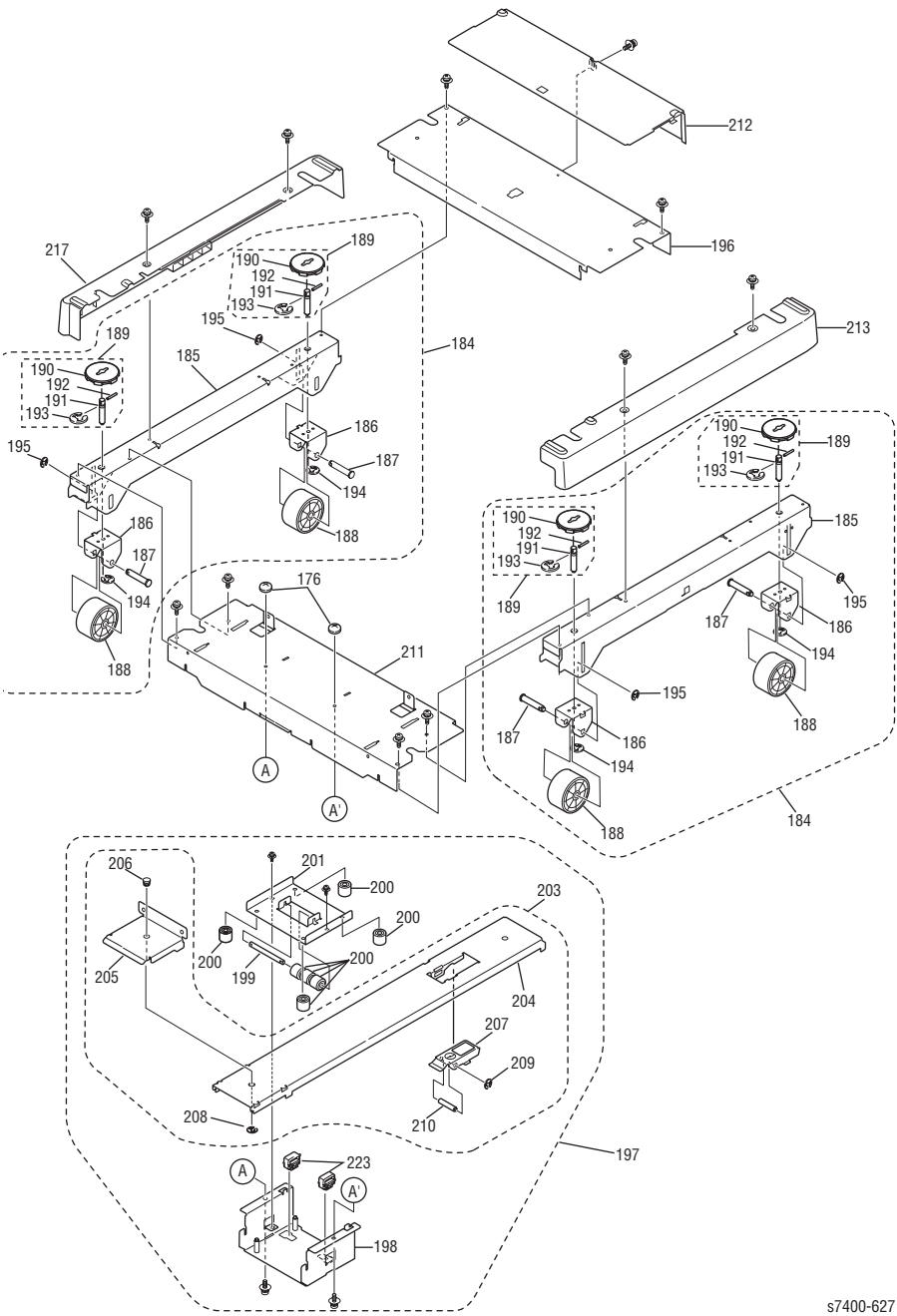


# Inverter Parts Diagram (2 of 3)



s7400-62

**Inverter Parts Diagram (3 of 3)**



s7400-627



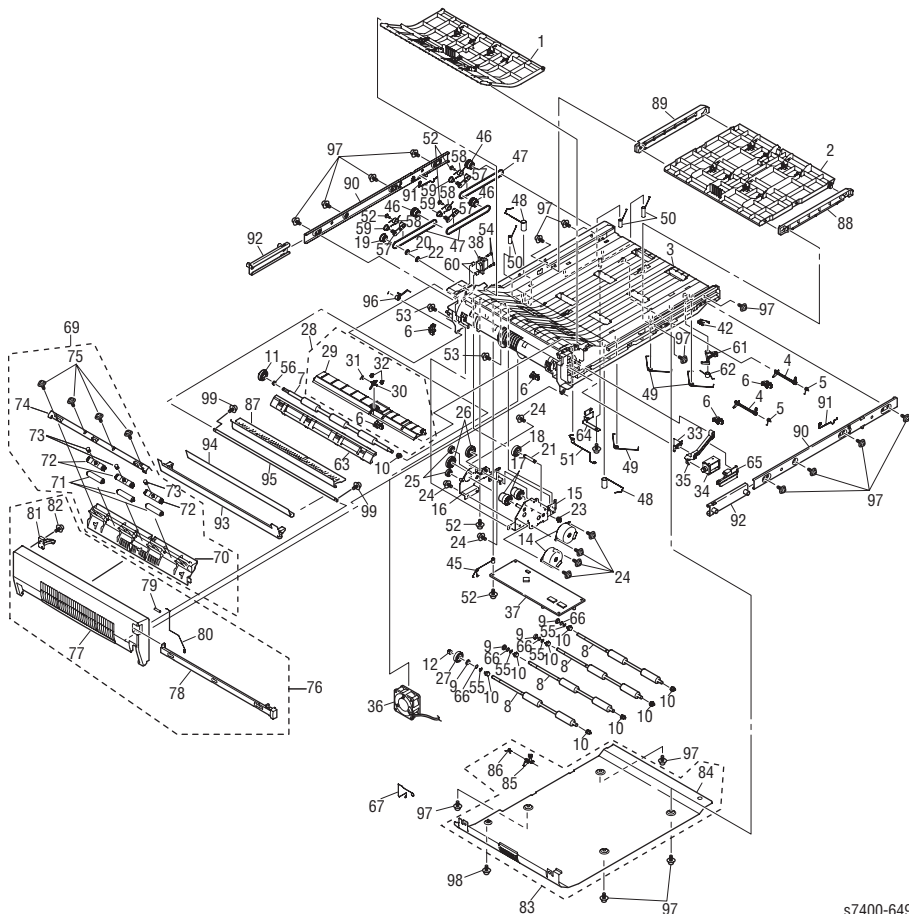
## Parts List 1.13 Inverter Parts List

### Inverter Parts List

ID	Part Number	Name/Description
0	112K00720	Inverter and Base
6	031E11260	Guide-Sheet-L-Assy XOBG
60	110E20010	PWR unit-ACDC Switch
61	960K32850	On-Board Assy.-V72-3
62	117E29240	CONN Cord-Wire AMP3P-SW
67	106E00920	Photo-Interrupter
71	059E05480	Roller-Register
72	059E05490	Roller-Exit
73	059E05500	Roller-Main
116	055K37080	Plate-Guide-C-Assy
129	121E20450	Solenoid
151	127E15500	Motor-Inverter
169	059E05510	Roller-Invert

# Duplex Unit Parts

## Duplex Unit Parts Diagram



s7400-649

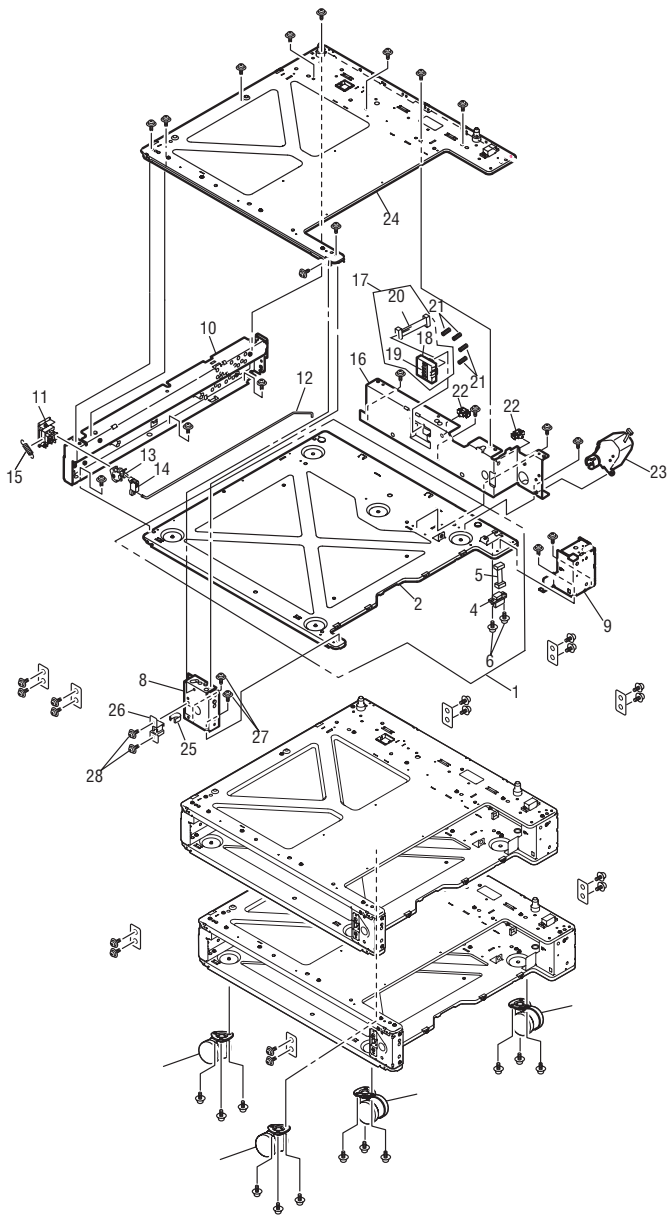
# Parts List 1.14 Duplex Unit Parts List

## Duplex Unit Parts List

ID	Part Number	Name/Description
0	084K35440	Duplex Unit

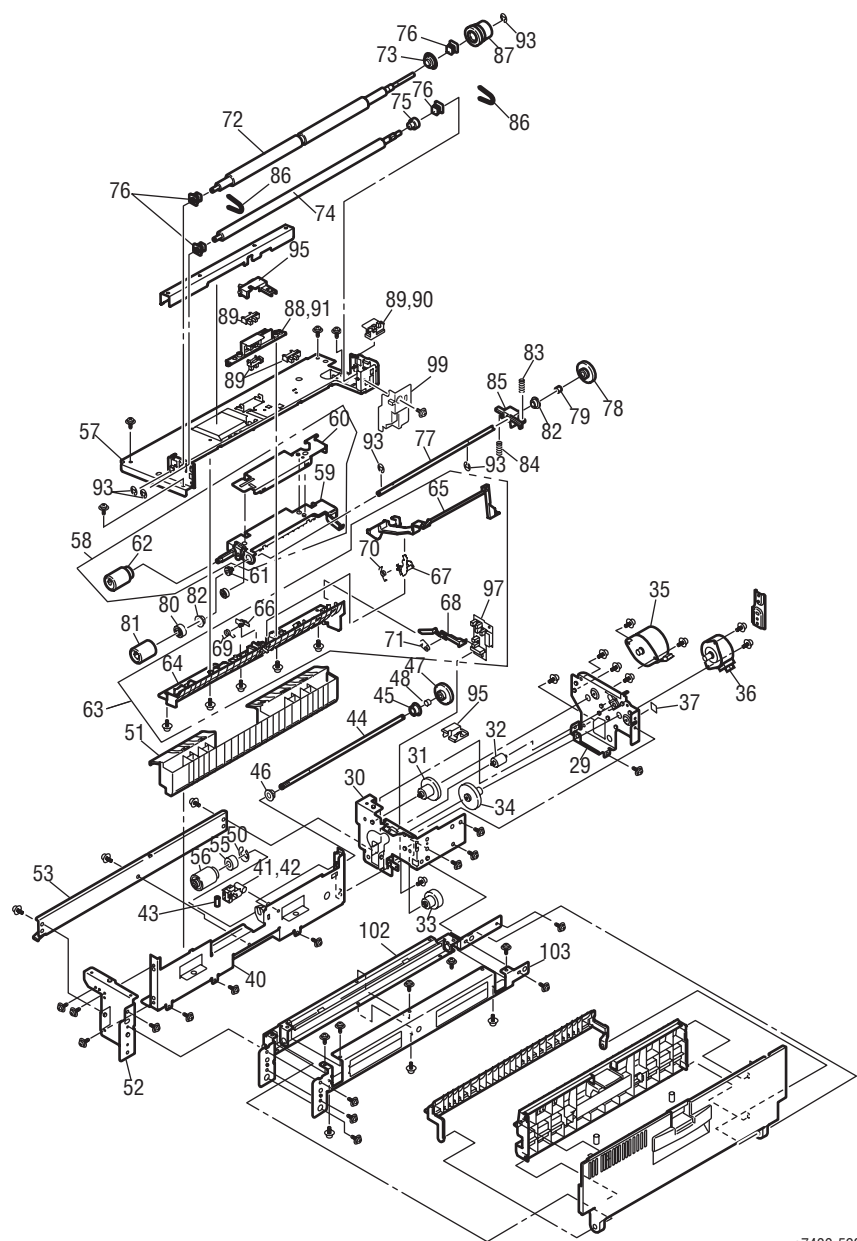
# Optional Paper Tray Parts

# Optional Tray Parts Diagram (1 of 2)



s7400-610

# Optional Tray Parts Diagram (2 of 2)



s7400-592

# Parts List 1.15 Optional Tray Parts List

## Optional Tray Parts List

ID #	Part Number	Name/Description
0	059K51750	Optional Tray Assembly (Single Tray)
*	059K52510	LTD Assembly (High-capacity feeder
*	050K61900	Optional feeder

### Note

The LTD assembly and optional feeders are not referenced in the preceding diagram.





# Wiring Diagrams

## In this chapter...

- Plug/Jack Designators
- Plug/Jack Locators
- Wiring Diagrams

Section

7



# Plug/Jack Locator Diagrams

The P/J Locator diagrams show the location of primary connections within the option devices. Use these illustrations to locate connections called out in the troubleshooting procedures presented in Section 3.

To find the location of a Plug or Jack:

- 1. Locate the P/J connector designator in the first column of the table.
- 2. With this information, go to the map listed in the second column.
- 3. Use the coordinates to quickly locate the connection indicated on the map with its P/J designation number.

## Print Options Plug/Jack Designators

### Finisher/Plug/Jack Designators

P/J	Map	Coord	Remarks
CN1	1	A-835	Receives 24-volt from the printer.
CN2	1	A-837	Monitors transmit and receive voltage levels from the printer.
CN3	1	I-834	Connects to the front and rear alignment motor signals.
CN4	1	K-836	Connects to front door (Door J), upper cover (Door H) , and home position sensors.
CN5	1	K-838	Connects to rear home position, tray paper, delivery belt position, and processing tray sensors.
CN6	1	D-834	Connects to the Lift Motor and the staple/fold motor.
CN7	1	K-835	Supplies required voltages for the Stapler unit.
CN8	1	B-834	Connects to the Stapler Safety, Front Door (Door J), and Joint switches.
CN9	1	H-841	Connects to swing guide home position, staple fold clock, and paddle home position sensors.
CN10	1	F-834	Connects to the paddle motor and feed motor signals.
CN11	1	J-841	Receives detect signals from the Stapler unit.
CN12	1	A-838	Supplies required signals for 1/2 of the punch unit (optional).
CN13	1	J-834	Connects to the delivery motor signals.
CN14	1	A-836	Supplies required signals for 1/2 of the punch unit (optional).
CN15	1	K-838	Connects to shift limit, Lift Motor clock, and bind tray sensors.
CN16	1	A-840	Connects to Inlet, stack feed roller, folding home position, and folding position sensors.

## Finisher/Plug/Jack Designators (Continued)

P/J	Map	Coord	Remarks
CN17	1	A-841	Connects to signal ground, transmit and receive data, DSR and DTR signals, and reset.
CN18	1	E-834	Supplies 24 volts to the Slide motor.
CN19	1	I-839	Connects to the full stack sensor.
SW1	1	C-841	Folding position adjustment, middle 2-point stapling.
PSW3	1	B-840	Factory mode
PSW2	1	C-840	Folding position adjustment, middle 2-point stapling.
PSW1	1	D-840	Folding position adjustment, middle 2-point stapling.
LED3	1	B-839	LED for PSW1.
LED2	1	C-839	LED for PSW2.
LED1	1	D-839	LED for PSW3.
CB1	1	B-835	Circuit breaker between Joint Switch and 24 volts from the printer.

## Punch Controller Board Plug/Jack Designator

P/J	Map	Coord	Remarks
J1001	2	H-838	Connects to Finisher Punch Transfer Motor.
J1002	2	H-840	Connects to Punch Motor.
J1003	2	D-842	Connects to CN12 of Finisher Unit.
J1004	2	G-842	Connects to CN14 of Finisher Unit.
J1005	2	H-835	Connects to waste-full photosensor board and the Waste-full LED board.
J1006	2	H-836	Connects to punch motor clock, punch home, and punch home position sensors.
J1007	2	D-834	Connects to the photosensor and LED boards.
SW1001	2	E-837	Punch hole count registration/sensor output adjustment, etc.
SW1002	2	E-838	Punch hole count registration/sensor output adjustment, etc.
SW1003	2	E-839	Punch hole count registration/sensor output adjustment, etc.
LED100 1	2	E-839	Determines number of punch holes (see page 4-2).
LED100 2	2	E-840	Determines number of punch holes (see page 4-2).
LED100 3	2	E840	Determines number of punch holes (see page 4-2).

## Inverter Controller Board Plug/Jack Designator

P/J	Map	Coord	Remarks
SNSCN0	3	F-837	Connects to paper sensors.
SNSCN1	3	E-837	Connects to Inverter Docking Sensor.
SNSCN2	3	E-837	Connects to Door Open Interlock Switch (Door F).
CL1	3	F-836	Connects to Lower Roller Solenoid.
CL2	3	C-836	Connects to Paper Diverter Solenoid.
FAN	3	D-836	Connects to diverter clutch.
MOTOR-A	3	C-837	Connects to the Upper Feed Motor.
MOTOR-B	3	A-837	Connects to the Lower Feed Motor.
MAIN1	3	J-837	Connects to connector supplying Finisher Controller Board signals.
MAIN2	3	E-839	Connects to power supply from the Finisher.
FLASH	3	H-836	Connect to external equipment for FLASH memory.
POWER	3	A-836	Connects to the Power Supply Board.

## Duplex Unit Controller Board Plug/Jack Designator

P/J	Map	Coord	Remarks
SNSCN0	4	F-837	Connects to the Front and Rear Paper Sensor.
SNSCN1	4	E-837	Connects to the Entrance Sensor and the Reverse Sensor.
SNSCN2	4	E-837	No connection.
CL1	4	F-836	Connects to the Paper Diverter Solenoid.
CL2	4	C-836	No connection.
FAN	4	D-836	Connects to the fan.
MOTOR-A	4	C-837	Connects to the Roller Motor.
MOTOR-B	4	A-837	Connects to the Reverse Roller Motor.
MAIN1	4	J-837	Connects to connector supplying signals from the Finisher, including power.
MAIN2	4	E-839	No connection.
FLASH	4	H-836	Connect to external equipment for FLASH memory.
POWER	4	A-836	No connection.

## Paper Tray Controller Board Plug/Jack Designator

P/J	Map	Coord	Remarks
FFSNS	5	F-837	Connects to TRYSNS1 and TRYSNS2 signals from the feeder board.
CL1	5	F-836	Connects to the registration clutch.
CL2	5	C-836	No connection.
GDDC	5	D-836	Connects to the Lift Motor.
MOTOR-A	5	C-837	Connects to the Feed Motor.
MOTOR-B	5	A-837	Connects to the Registration Motor.
MAIN1	5	J-837	Connects to connector supplying Feeder Board signals.
MAIN2	5	E-839	Connects to power supply from the Finisher.
FLASH	5	H-836	Connect to external equipment for FLASH memory.
POWER	5	A-836	No connection.

## Paper Tray Feeder Board Plug/Jack Designator

P/J	Map	Coord	Remarks
TRYSNS1	6	G-836	Connects signals from the Paper Tray Controller Board.
TRYSNS2	6	E-839	Connects to the Door C detect Sensor, the Feed-Out Sensor, and the Registration Sensor.
PAPEND	6	D-838	Connects to the No Paper Sensor.

## Finisher Sensor Designators

P/J	Map	Coord	Remarks
MS2	7	D-839	Connects to the Joint Switch
MS1	7	H-839	Connects to the Front Door Switch
CN25	7	D-839	Connects to the Front Door Sensor
CN44	8	G-836	Connects to the Inlet Sensor
CN32	8	D-837	Connects to the Tray Paper Sensor
CN35	8	E-837	Connects to the Paper Surface Sensor
CN24	7	D-838	Connects to the Upper Cover (Door H) Sensor
CN50	8	F-836	Connects to the Shift (Upper) Limit Sensor
CN49	7	F-837	Connects to the Shift (Lower) Limit Sensor
CN48	7	B-839	Connects to the Shift Clock Sensor

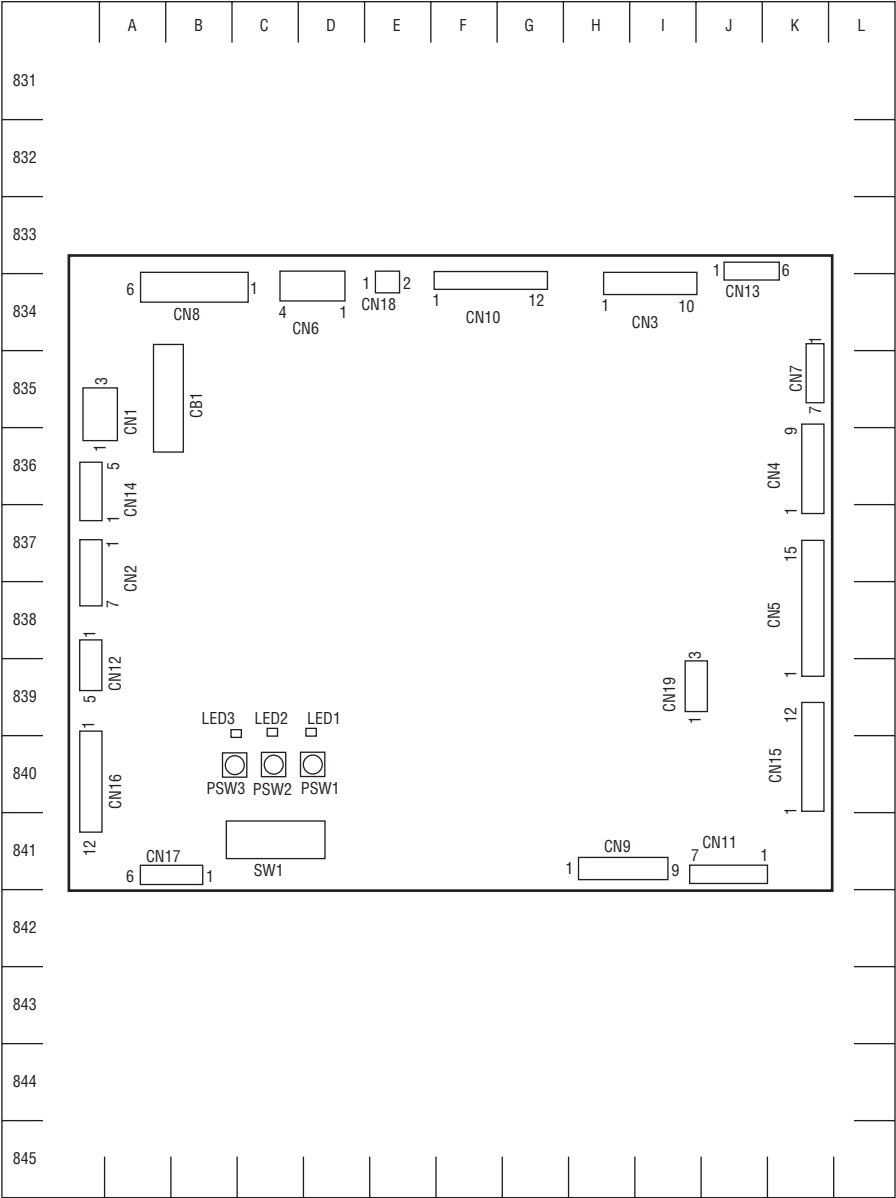
## Finisher Sensor Designators (Continued)

P/J	Map	Coord	Remarks
CN73	7	F-838	Connects to the Full Stack Sensor
CN30	8	E-838	Connects to the Processing Tray Sensor
CN23	7	C-838	Connects to the Aligning Plate (Front) Home Position Sensor
CN36	8	E-836	Connects to the Aligning Plate (Rear) Home Position Sensor
CN41	8	F-837	Connects to the Stack Feed Roller Home Position Sensor
J2006	8	G-836	Connects to the Waste Full Sensor
CN31	8	E-837	Connects to the Delivery Belt Home Position Sensor
CN51	8	F-836	Connects to the Paddle Home Position Sensor
SSS	7	F-836	Connects to the Stapler Safety Interlock Switch
CN52	7	B-839	Connects to the Staple/Fold Cock Sensor
CN40	8	C-838	Connects to the Folding Home Position Sensor
CN47	7	F-839	Connects to the Bind Tray Sensor
CN39	8	G-838	Connects to the Folding Position Sensor

## Inverter Sensor Designator

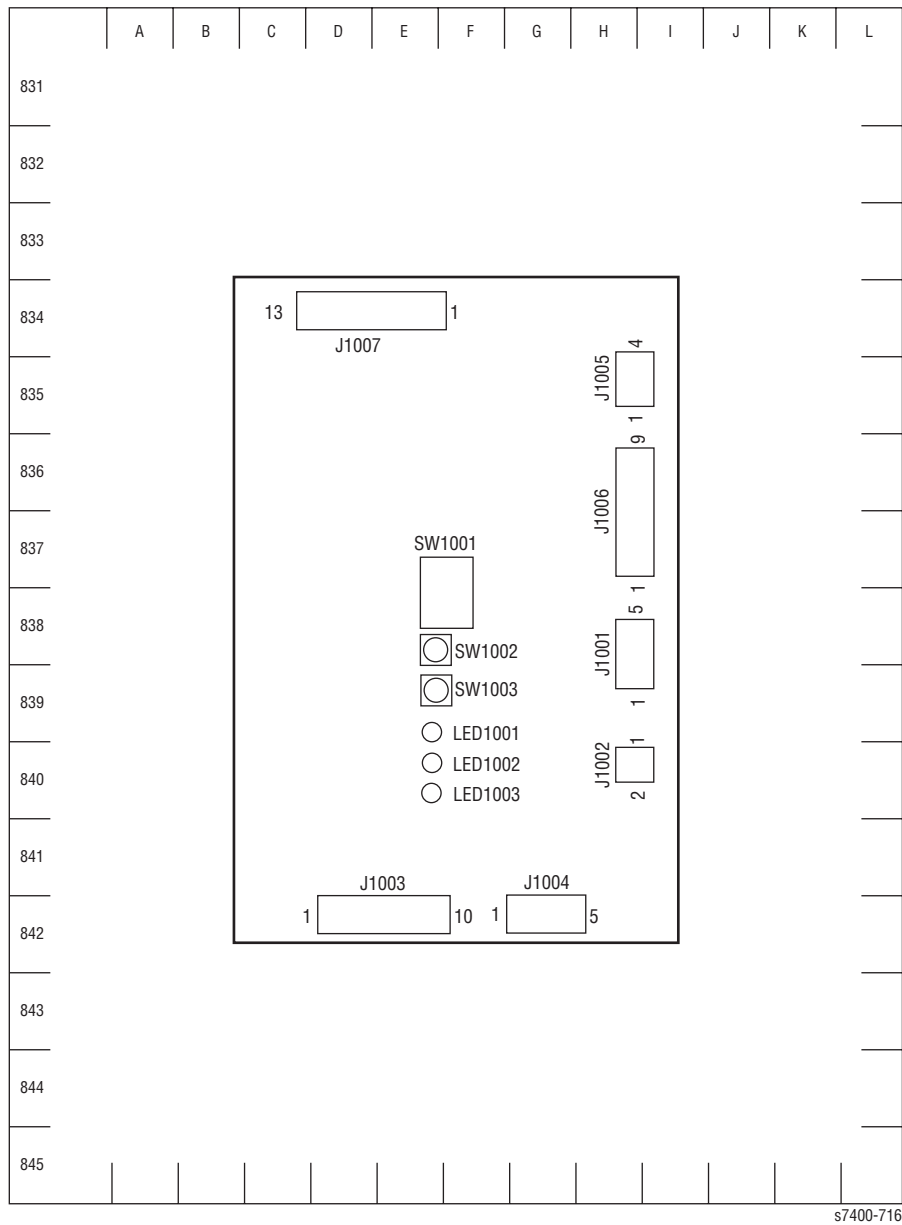
P/J	Map	Coord	Remarks
P/J13	9	H-837	Connects to the Inverter Docking Sensor
SNSCN2	9	H-836	Connects to the Inverter Door Open Interlock Switch
P/J10	9	F-835	Connects to the Inverter Upper Paper-Present Sensor
P/J12	9	G-839	Connects to the Inverter Lower Paper-Present Sensor
P/J11	9	F-835	Connects to the Inverter Paper-in Sensor

Map 1: Finisher Controller Board Locator Diagram



s7400-269

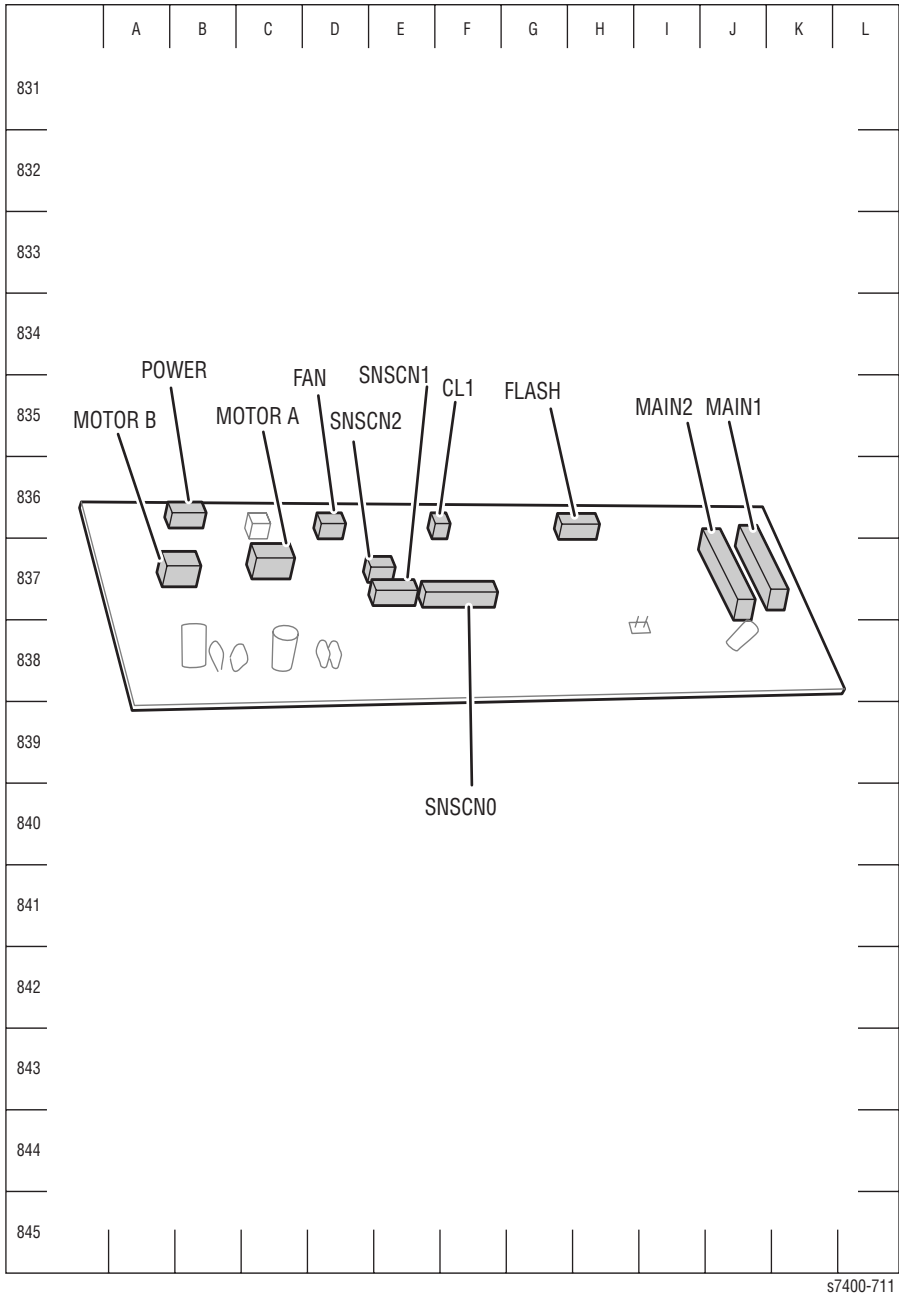
Map 2: Punch Controller Board Locator Diagram



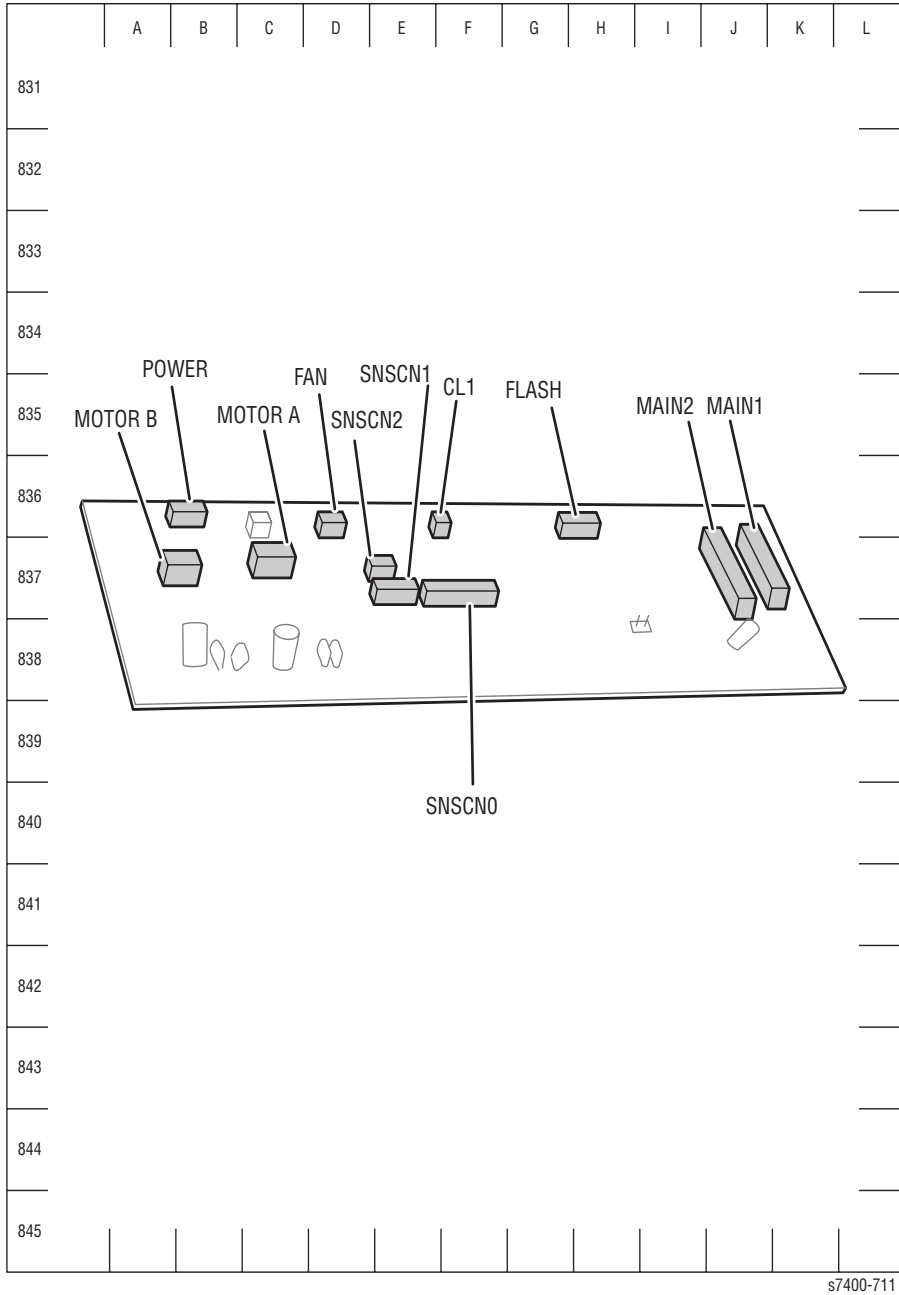
s7400-716



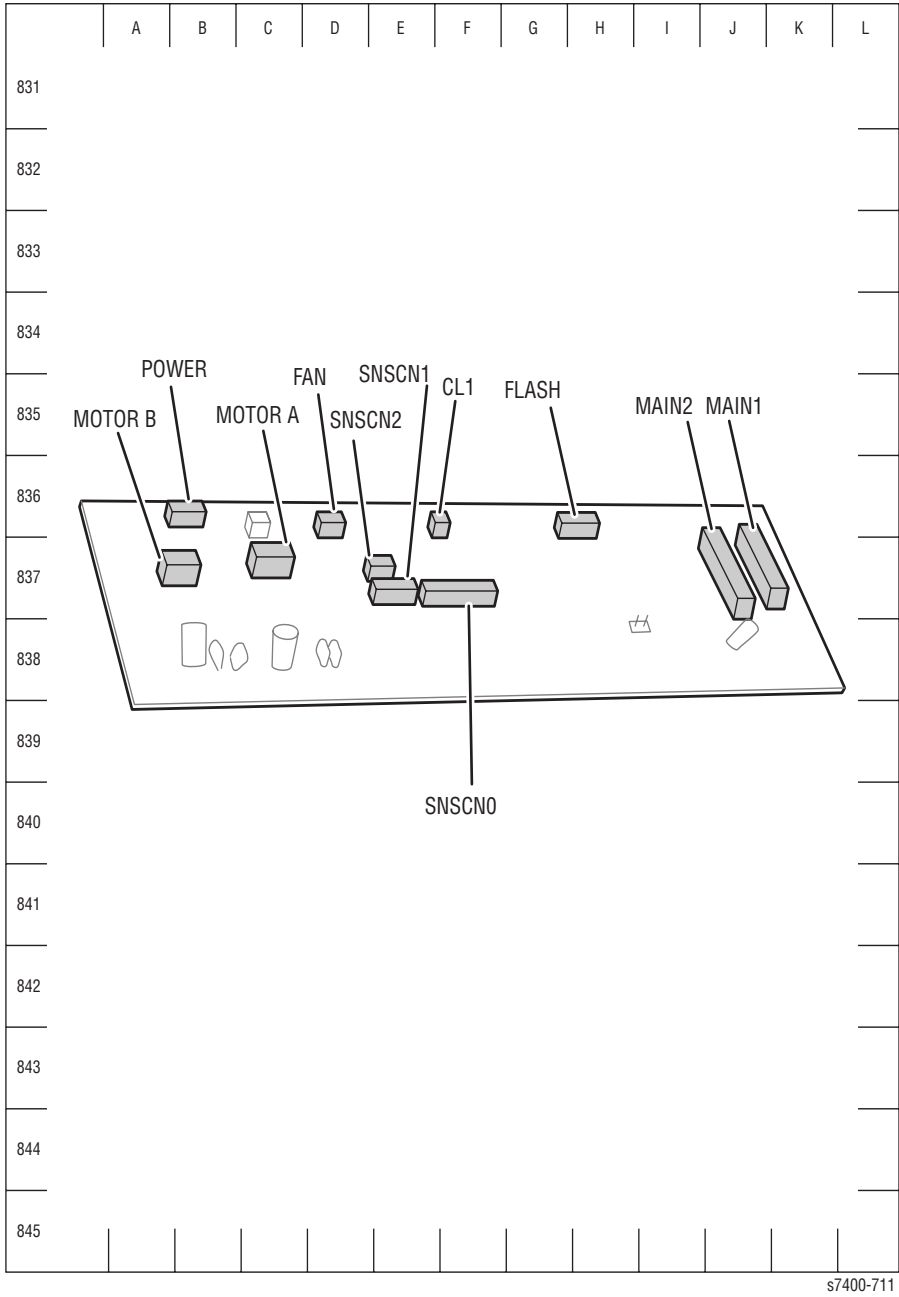
Map 3: Inverter Controller Board Locator Diagram



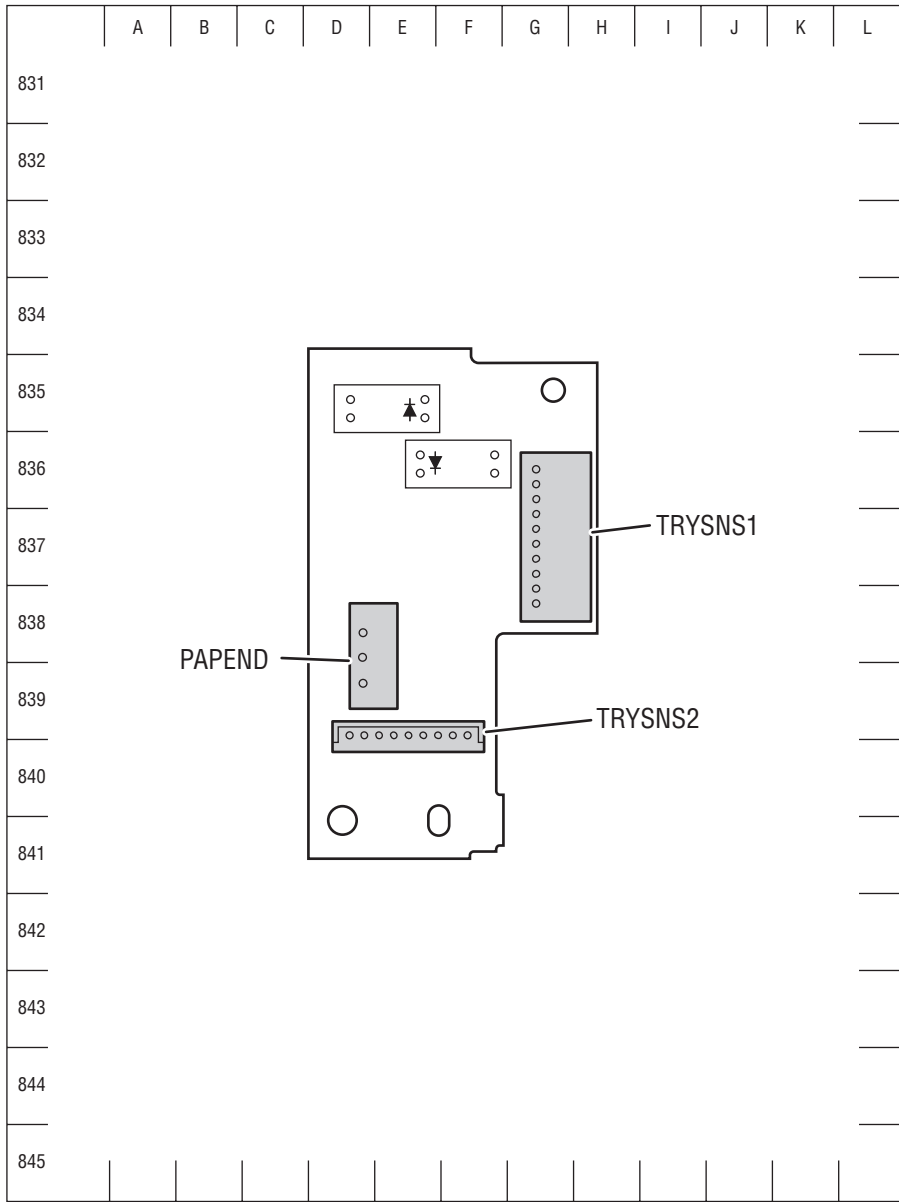
Map 4: Duplex Unit Controller Board Locator Diagram



Map 5: Paper Tray Controller Board Locator Diagram

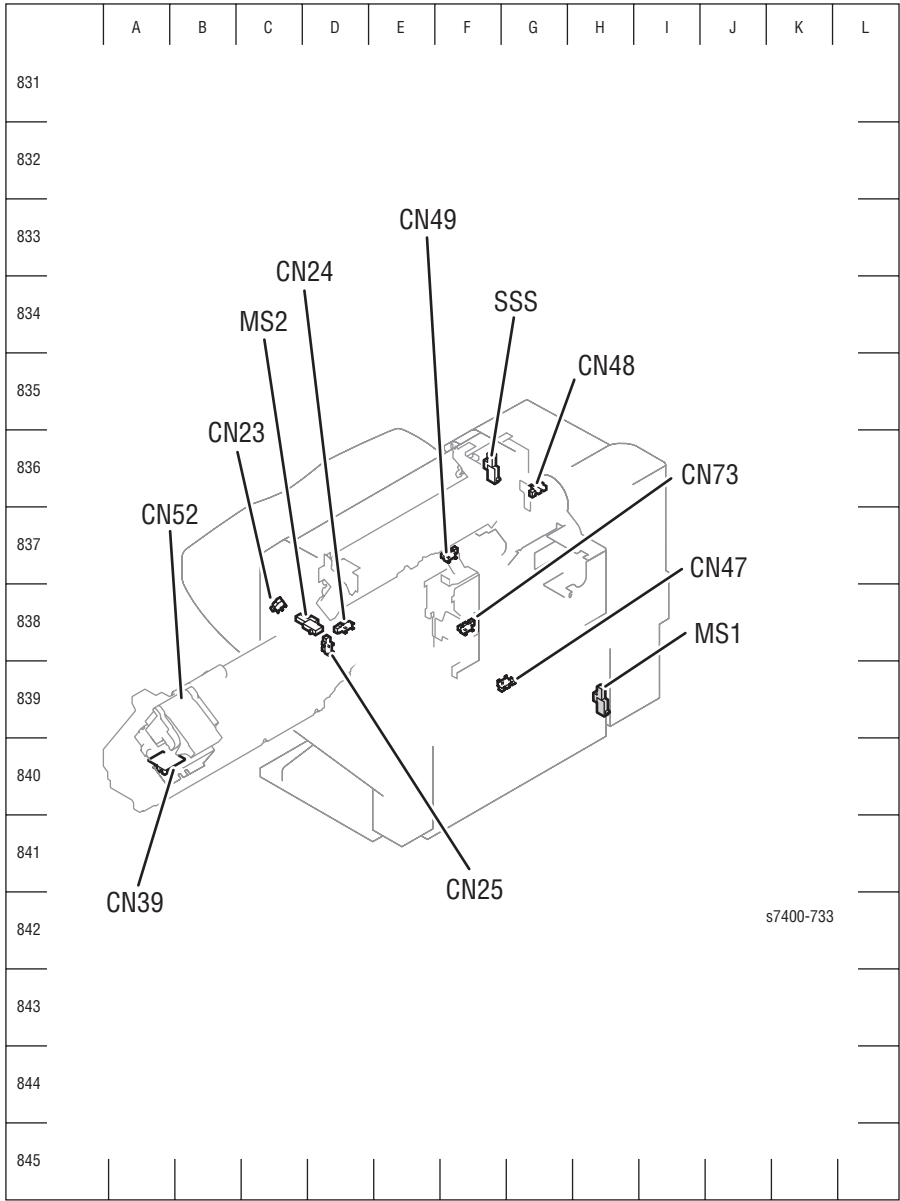


Map 6: Paper Tray Feeder Board Locator Diagram

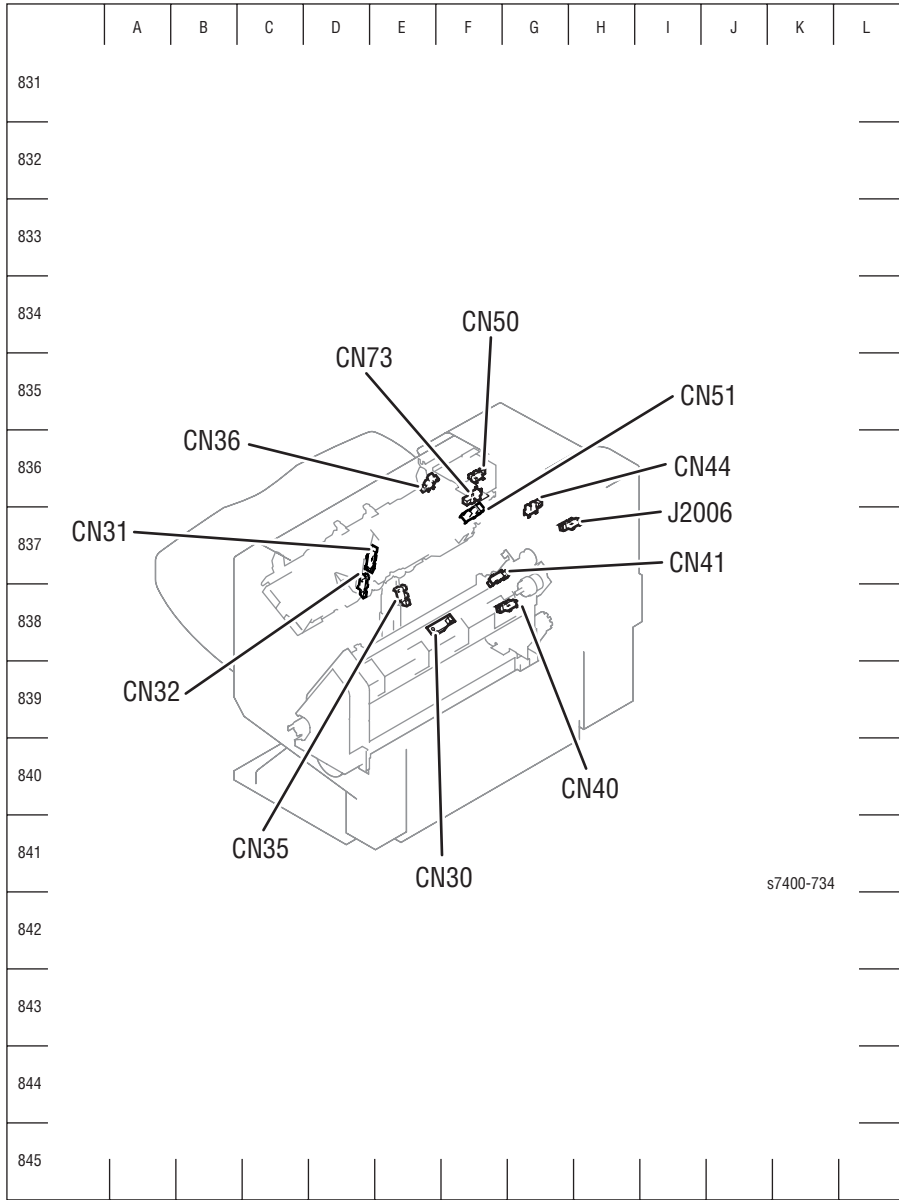


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Map 7: Finisher Sensor Locator Diagram (1 of 2)

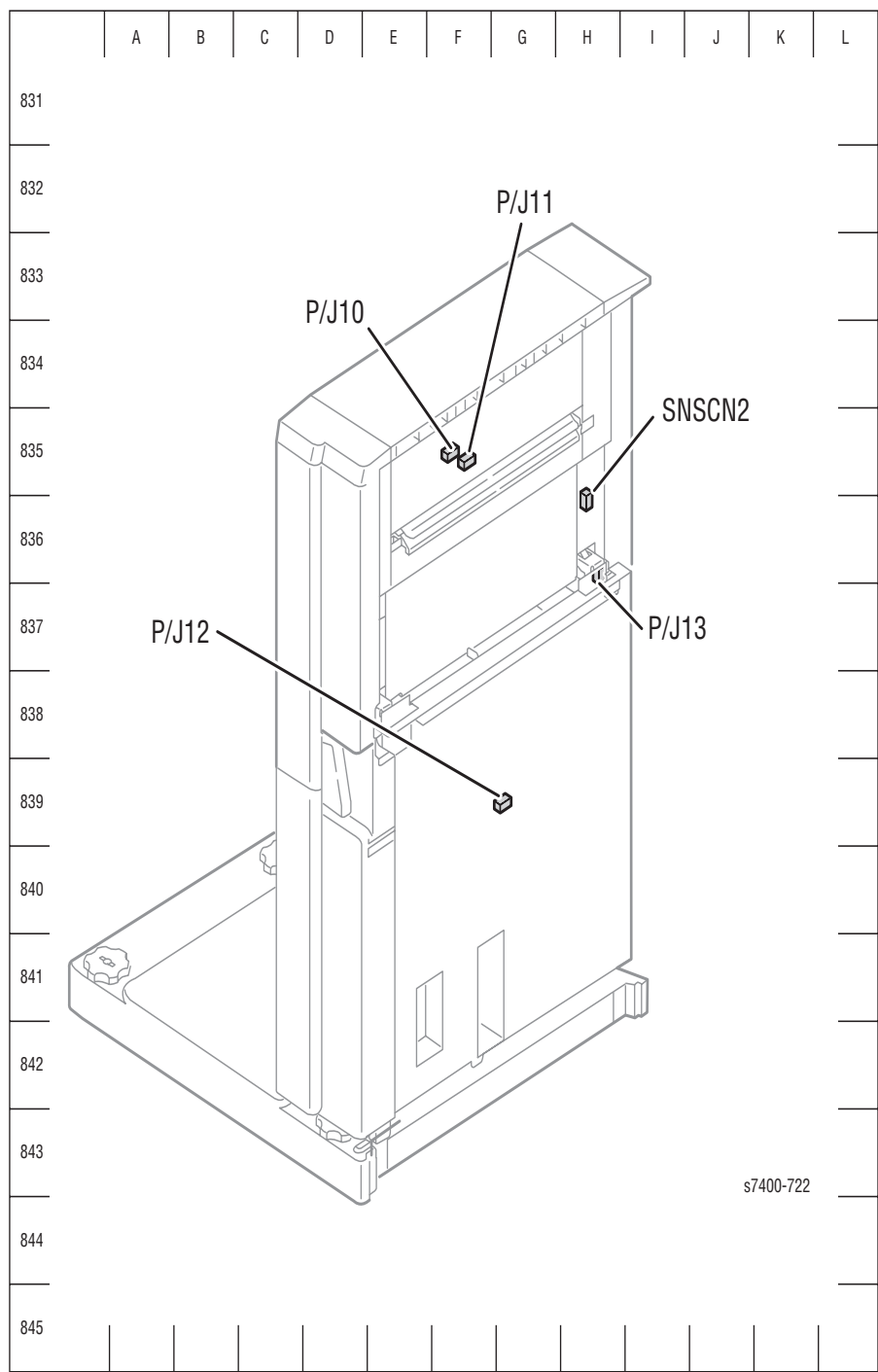


Map 8: Finisher Sensor Locator Diagram (2 of 2)



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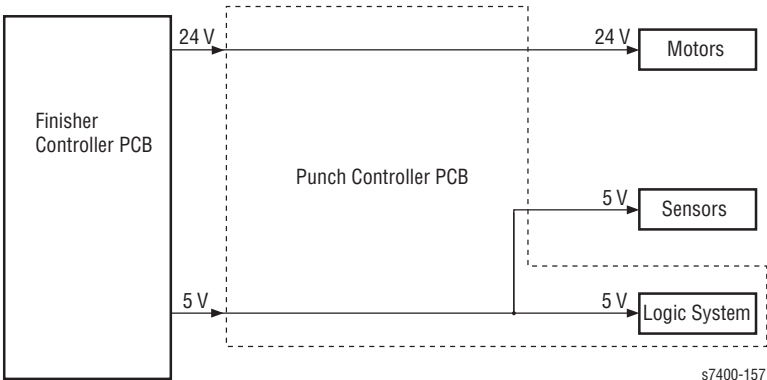
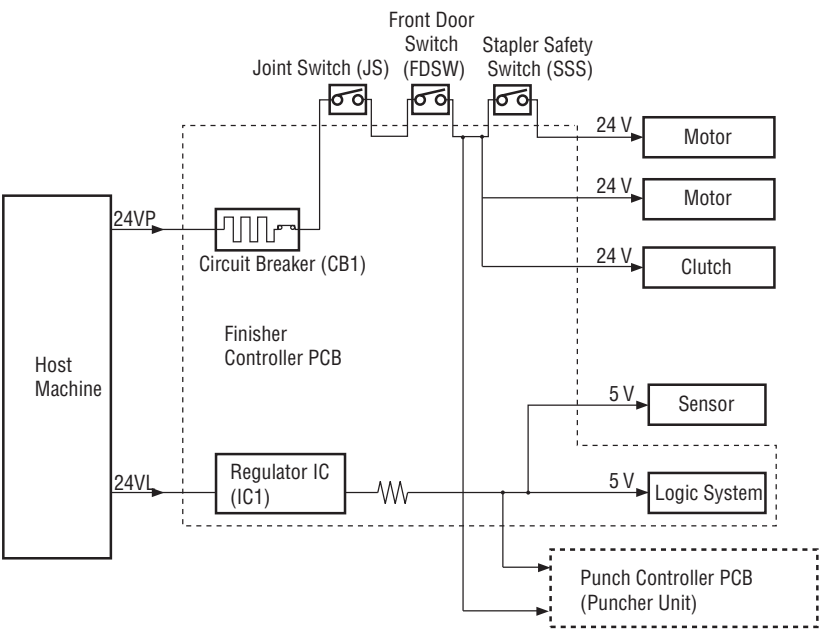
Map 9: Inverter Sensor Locator Diagram



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# Finisher Wiring Diagrams

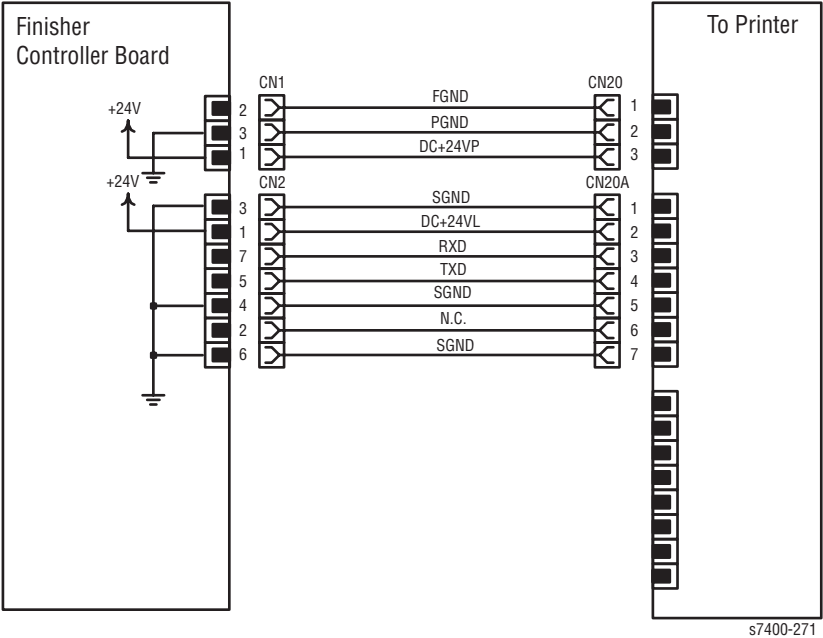
## Finisher/Punch Power Supply Wiring Diagram



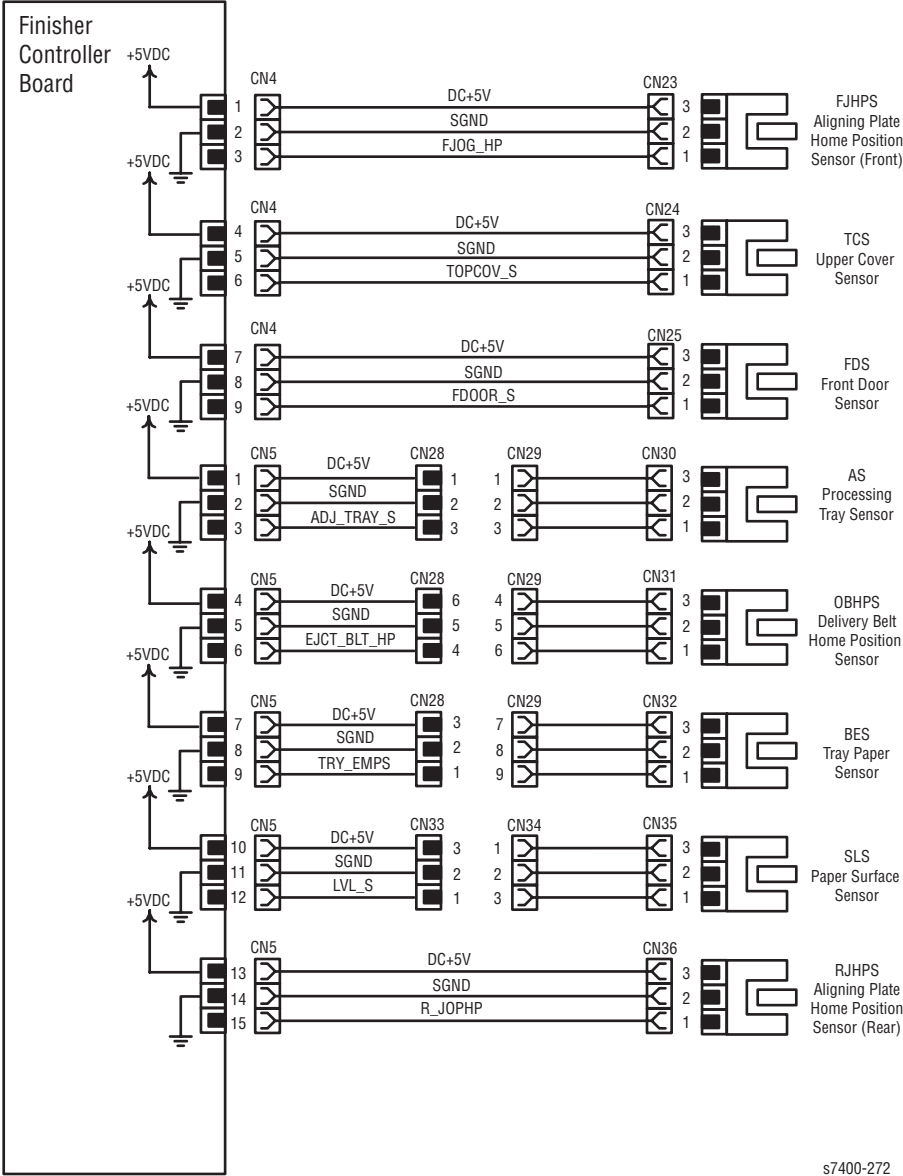
s7400-157



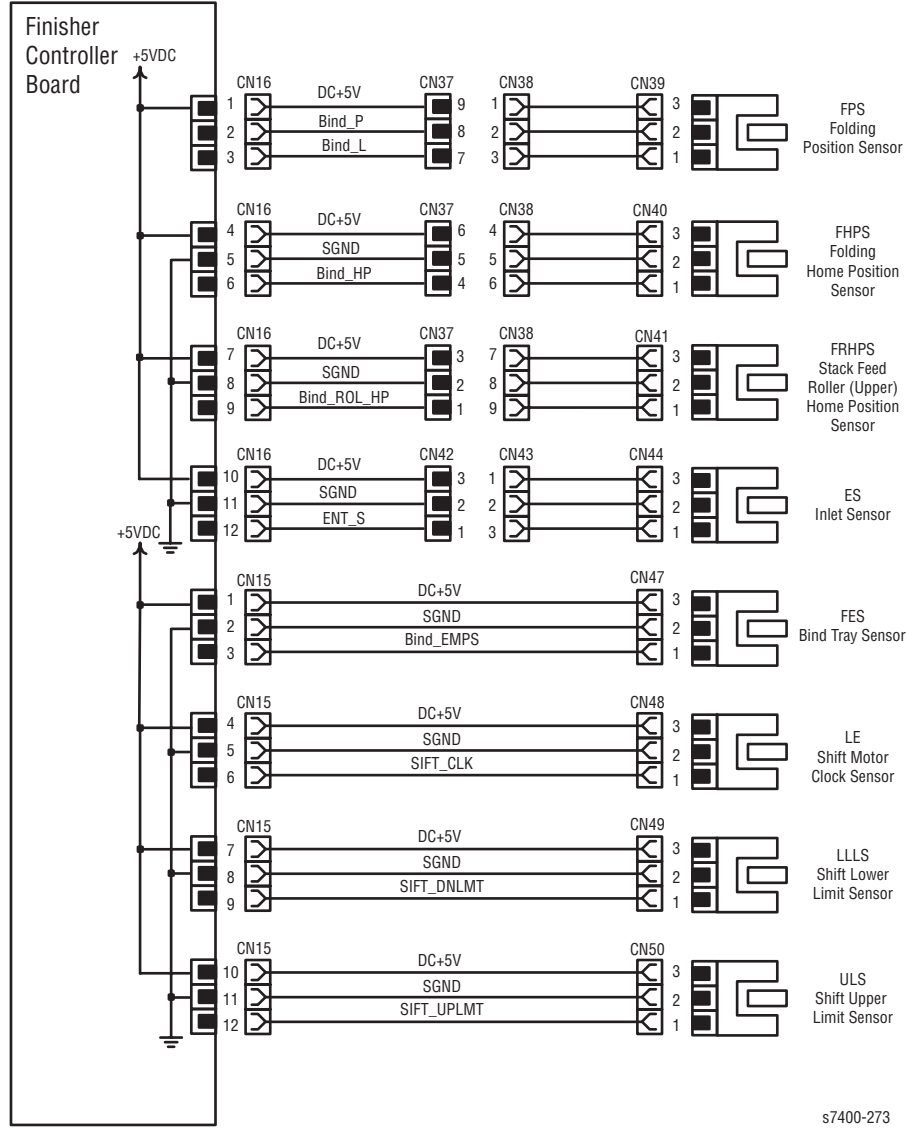
# Finisher Controller to Printer Wiring



# Finisher Controller to Sensors (1 of 3)

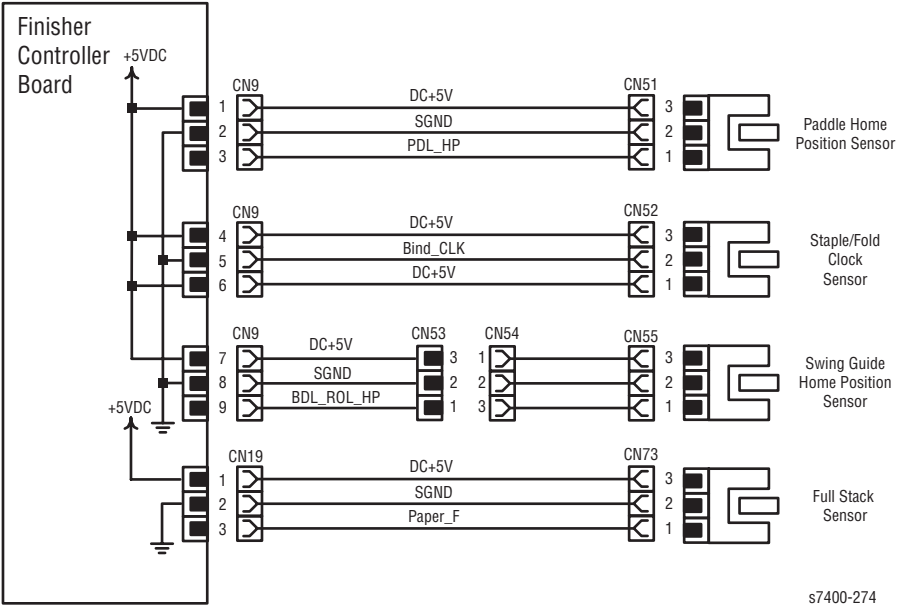


# Finisher Controller to Sensors (2 of 3)

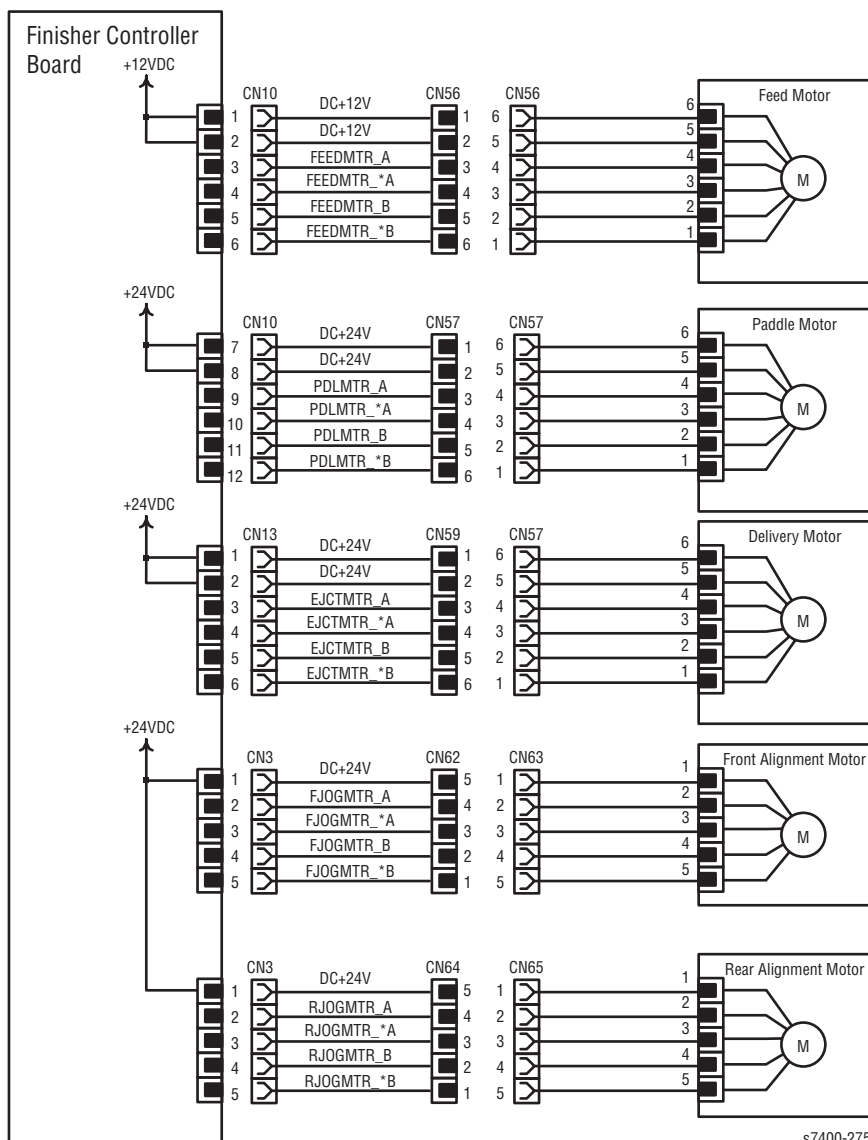


s7400-273

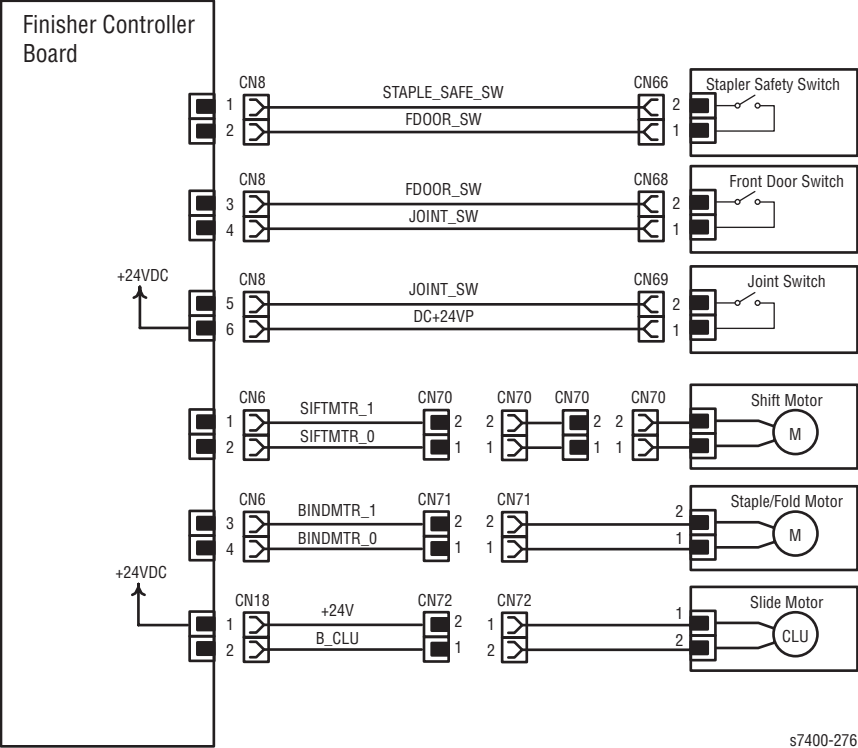
# Finisher Controller to Sensors (3 of 3)



## Finisher Controller to Motors

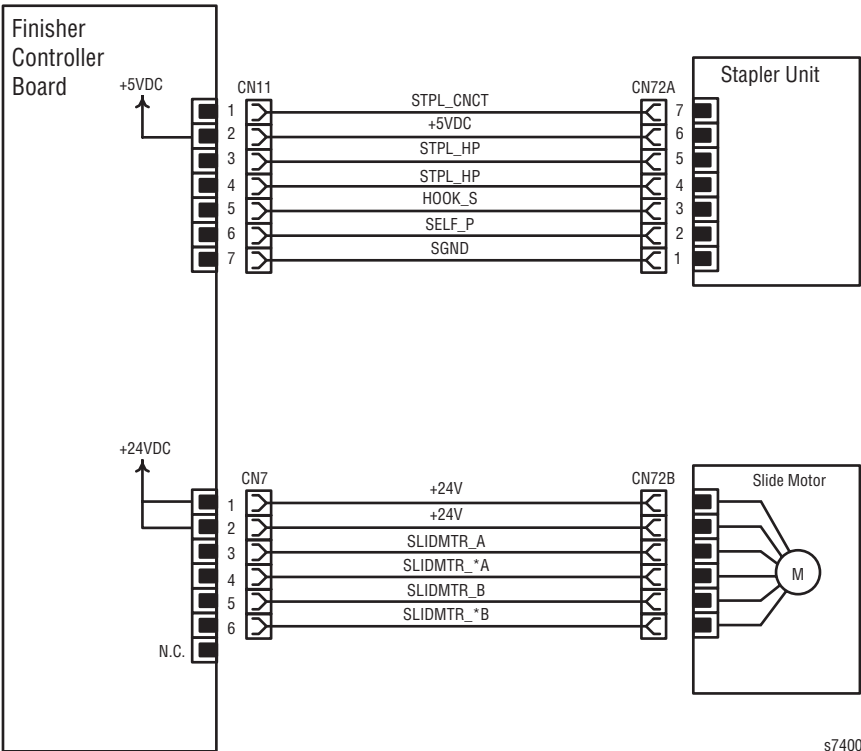


# Finisher Controller to Switches



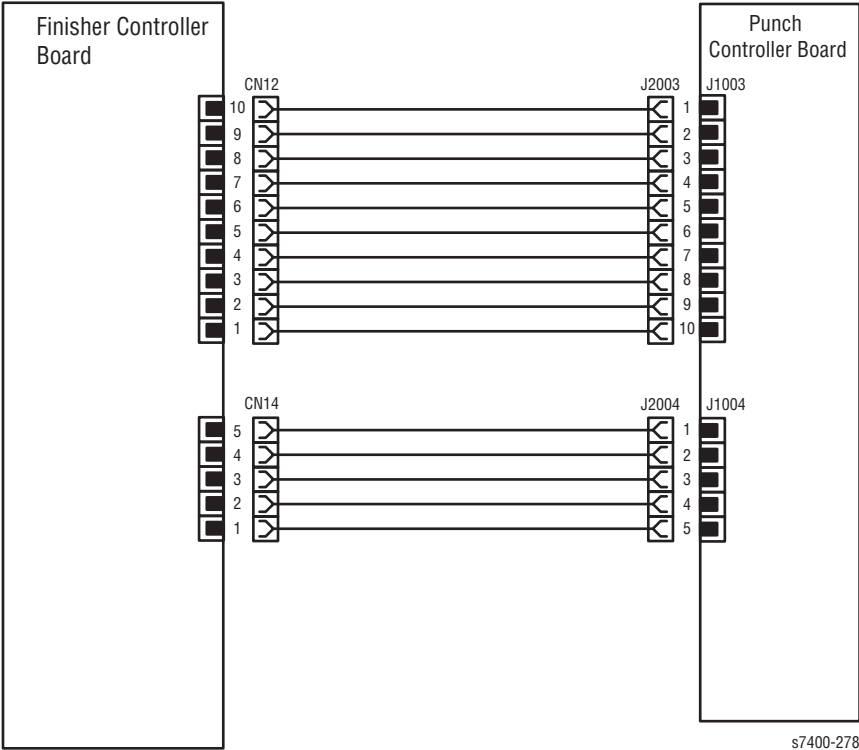
s7400-276

# Finisher Controller to Stapler Sensors and Motors



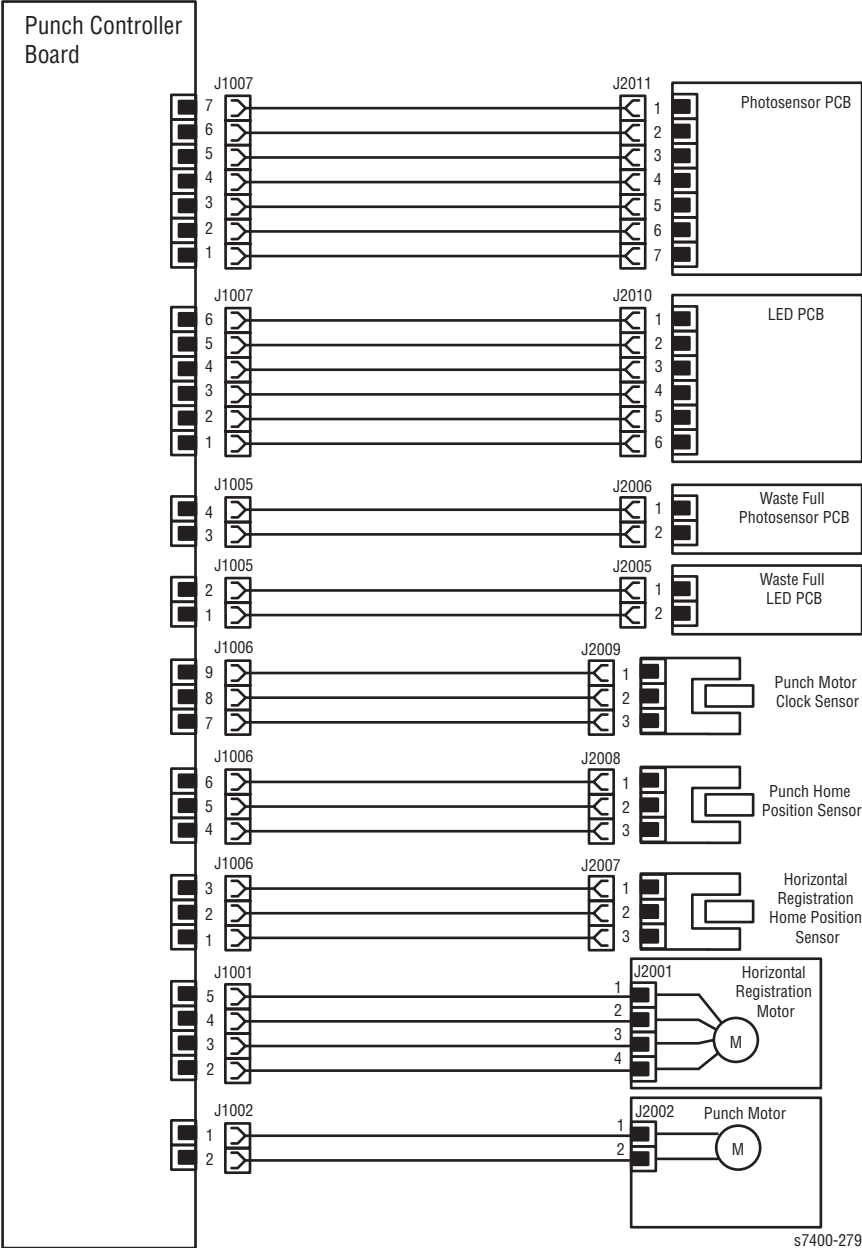
s7400-277

# Finisher Controller to Punch Controller

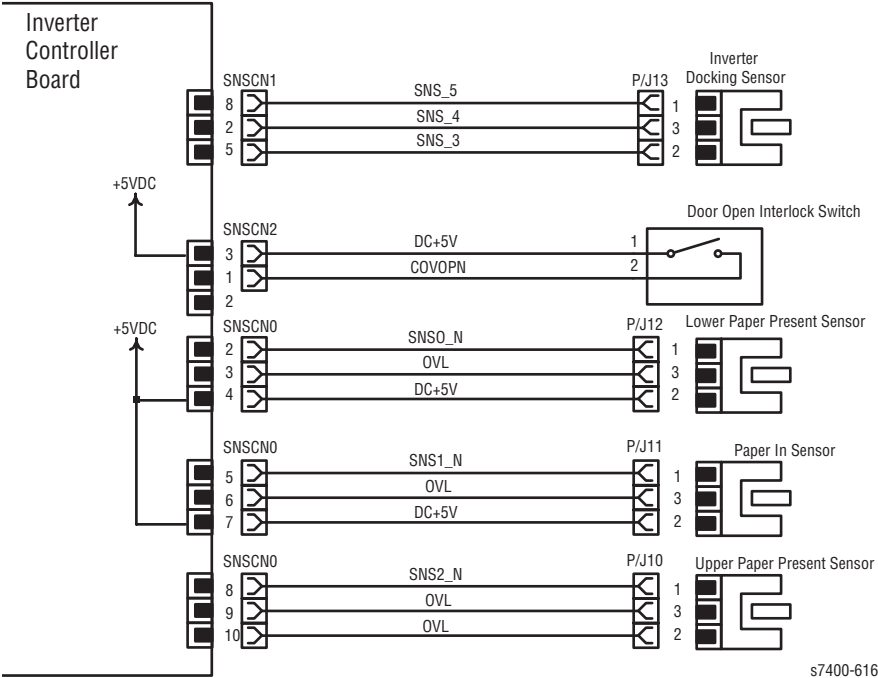




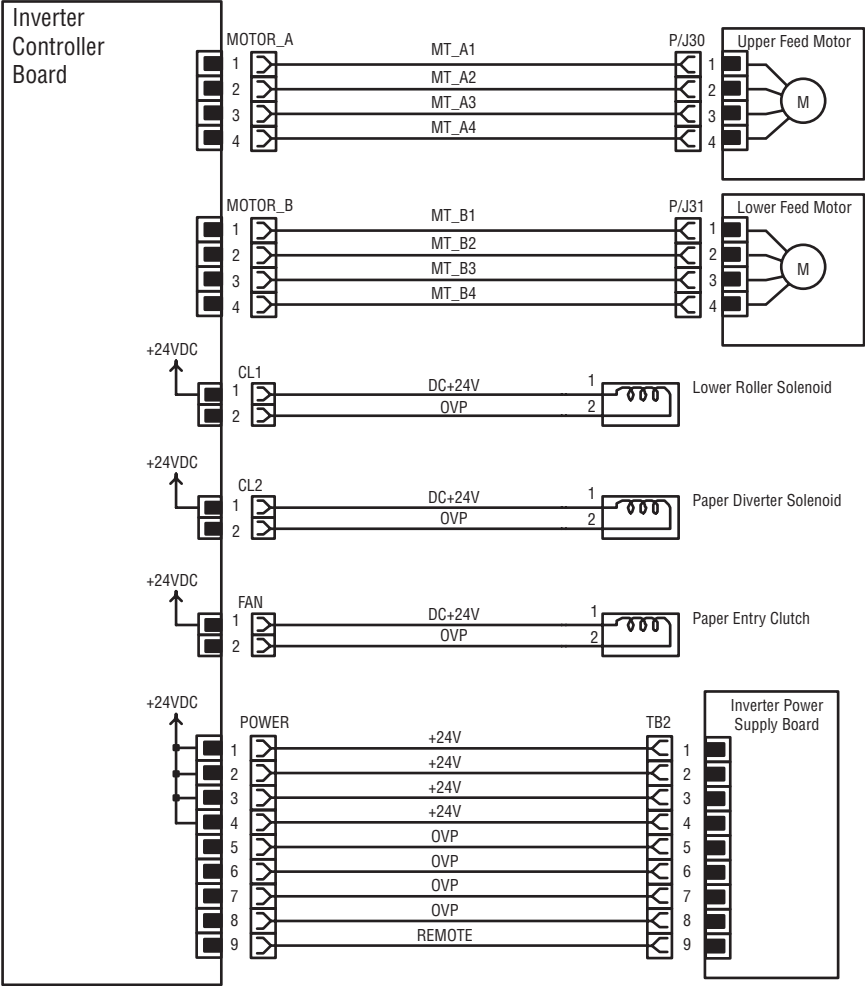
# Punch Controller to Sensors and Motors



# Inverter Sensors Wiring Diagram



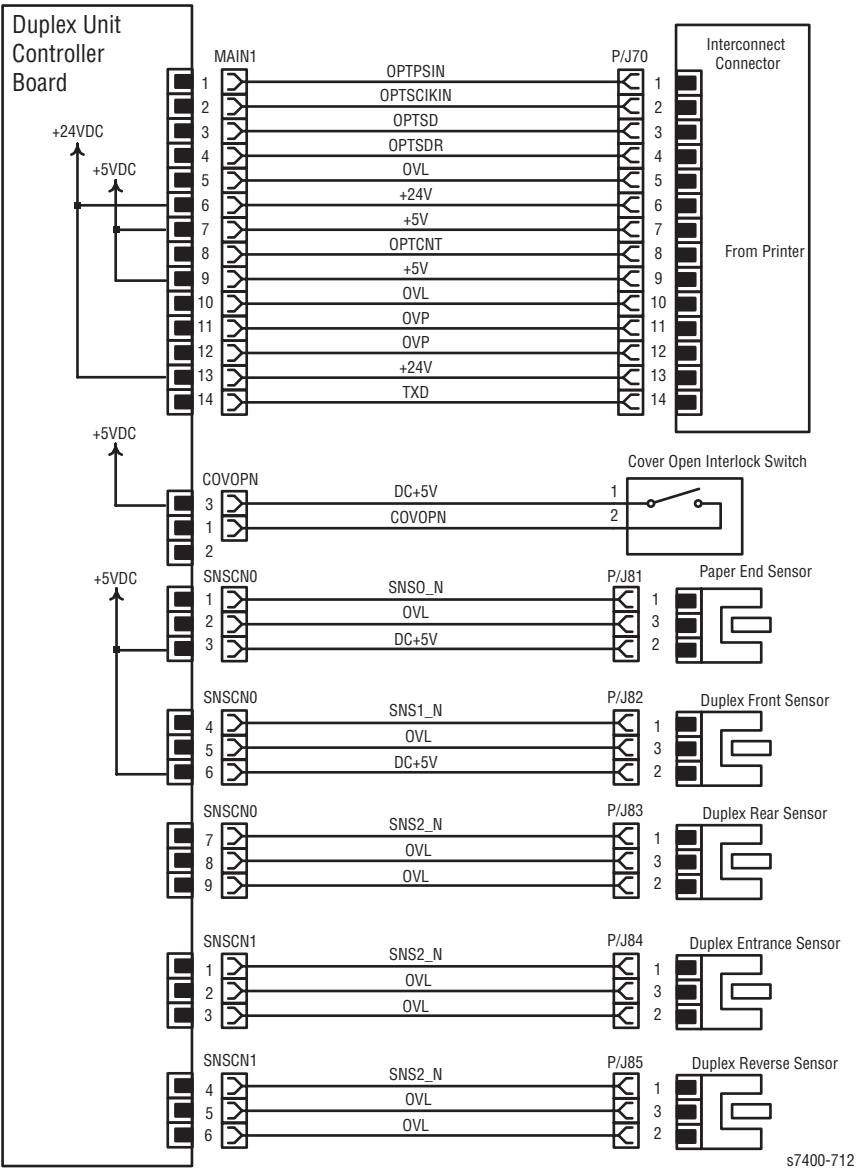
# Inverter Motors, Solenoids, and Clutch Wiring Diagram



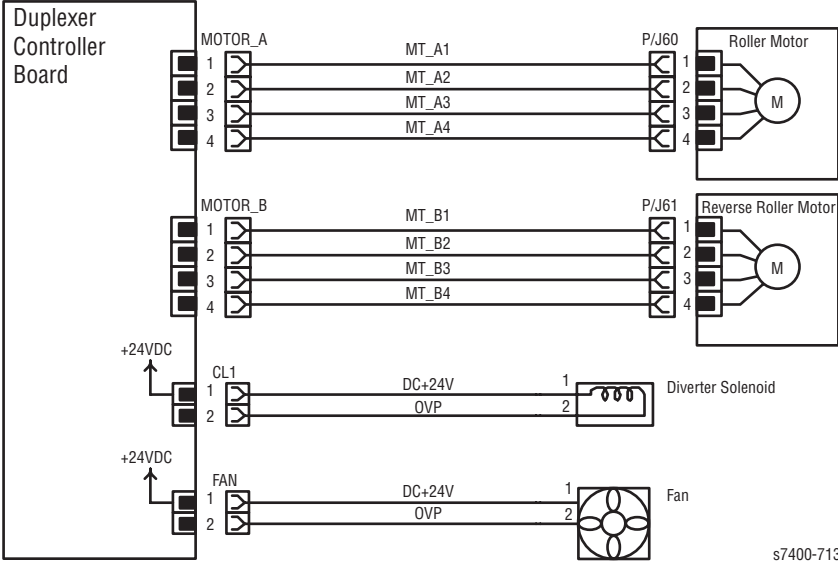
s7400-617

# Duplex Unit Wiring Diagrams

## Duplex Unit Sensors and Interconnect Wiring

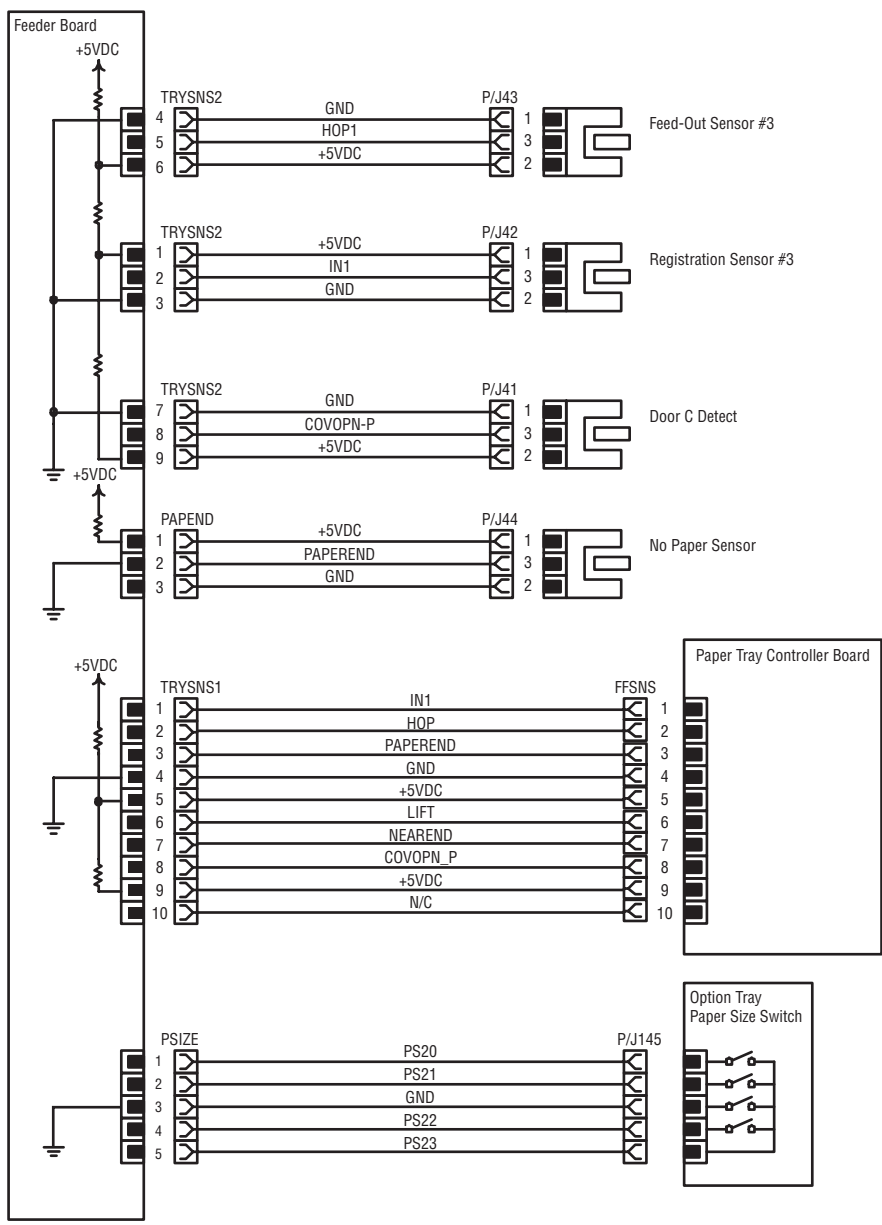


# Duplex Unit Motors and Solenoids

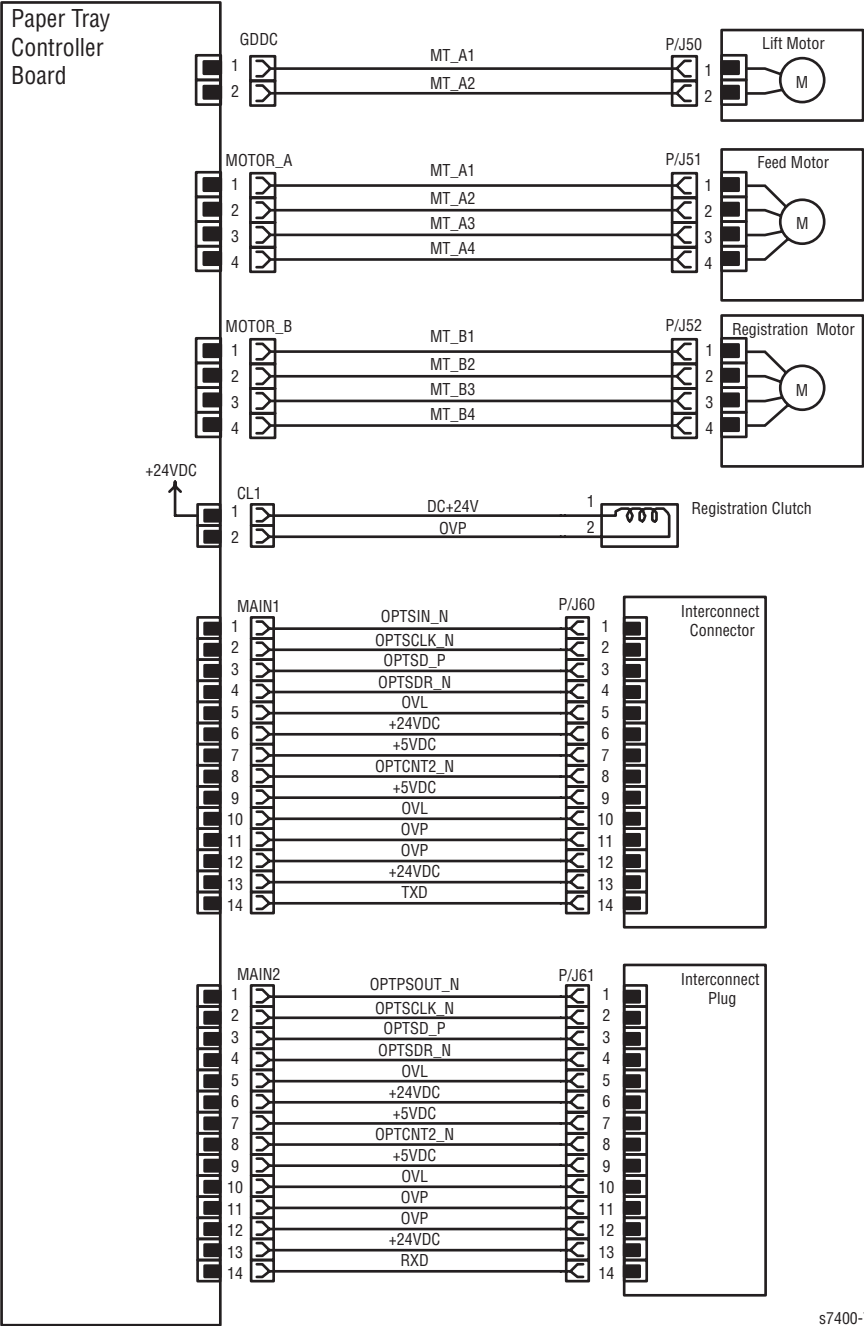


# Optional Tray Wiring Diagrams

## Paper Tray Sensors and Interconnect Wiring



# Paper Tray Motors, Clutches, and Interconnect Wiring



s7400-715





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